

Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies



**Thirty-ninth Session
of the Executive Council**

Paris, 21–28 June 2006

UNESCO

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1. OPENING

1 The Chairman of IOC, Professor David Pugh, opened the 39th Session of the IOC Executive Council at 09.50 a.m. on Wednesday 21 June 2006. The Chairman asked the participants to stand in silence for one minute as a mark of respect for distinguished individuals who have collaborated with the Commission and have passed away during the past year: Agustín Ayala-Castañares (Mexico), former Chairman IOC, Sergey Sergeevich Lappo (Russia), and Joke Waller-Hunter, Executive Secretary of the Secretariat of the United Nations Framework Convention on Climate Change.

2 The Chairman welcomed the three new Member States that have joined IOC since June 2005: Cook Islands, Djibouti and Papua New Guinea.

2. ORGANIZATION OF THE SESSION

2.1 ADOPTION OF THE AGENDA

3 The Executive Secretary introduced this item. All agenda items decided by the Assembly at its 23rd Session and by the Executive Council, subsequently, were included in the Revised Provisional Agenda. The Executive Secretary informed the Council that he had decided to include, with the agreement of the Officers of the Commission, Agenda Item 4.2.3—which was not in the initial Provisional Agenda—to allow consideration of the statutory report of the WMO–ICSU–IOC World Climate Research Programme (WCRP). This decision was made at the request of the Director of WCRP, Ann Henderson-Sellers, in fulfilment of the reporting mandate contained in the Memorandum of Understanding signed by the sponsoring agencies of WCRP.

4 The Executive Secretary also drew the attention of the Council to the fact that Agenda Item 6 provided an opportunity to have an open discussion with the Director-General of UNESCO, which was scheduled for 9.30 a.m. on 28 June 2006, immediately following the Director-General's address to the Council.

5 The Executive Secretary also announced that Vice-Admiral (Retired) Lautenbacher, Co-Chairman of GEOSS, would address the Council on 21 June 2006 afternoon, in advance of the discussion of item 4.1.4.

6 **The Executive Council adopted** the Revised Provisional Agenda without change; the Agenda for the present session is in [Annex I](#) hereto.

2.2 DESIGNATION OF THE RAPPORTEUR

7 The Chairman invited the Council to designate the Rapporteur for the present session to assist the Chairman and the Executive Secretary in the preparation of the Draft Summary Report.

8 The United Kingdom, supported by France and Italy, proposed the Republic of Korea as the Rapporteur. The Korean Delegation accepted this proposal and nominated Mr Sang-Kyung Byun to be the Rapporteur.

9 The Executive Council accepted the proposal and welcomed Mr Byun as Rapporteur for the present session.

2.3 ESTABLISHMENT OF INTRASESSIONAL COMMITTEES

10 **The Executive Council established** the following open-ended statutory intrasessional committees, following the recommendations made by the Officers prior to the present session:

- (i) Technical Resolutions Committee, under the chairmanship of Canada
- (ii) Programme and Budget Committee, under the chairmanship of IOC Vice-Chairman, Neville Smith (Australia)
- (iii) Committee on the IOC Medium-term Strategy, 2008–2013, under the chairmanship of IOC Vice-Chairman, Captain Javier Valladares (Argentina).

2.4 INTRODUCTION OF TIMETABLE AND DOCUMENTATION

11 The Executive Secretary introduced the documentation.

12 The United Kingdom noted with concern the late availability of documents for the present session which had made national consultation difficult and which may reflect negatively on the effectiveness of all delegations during the session and on their reporting to their respective national authorities concerned, during and after the session.

13 France particularly stressed the importance of distributing the Action Paper to Member States in all languages at the earliest possible date prior to the session.

14 Portugal supported the remarks of the United Kingdom and France and pointed out that the impact of IOC would be stronger at the national level if national consultations in advance of the session, based on the relevant available documentation, are effective. Portugal added that this issue also poses the question of the IOC in terms of budget and staff to perform its tasks.

15 The Executive Secretary apologized for the late delivery of the documentation for the session, particularly the working document on the Draft Guidelines for the IOC Medium-term Strategy, 2008–2013.

16 The Chairman invited the Council to adopt the Provisional Timetable taking into account: (i) the time required by the invited speakers and any reporting in Plenary of intrasessional committees; (ii) the timely preparation of the Draft Summary Report in all the Commission's working languages; and (iii) the need to take full advantage of the UNESCO interpretation services.

17 **The Executive Council adopted** the second revised Provisional Timetable.

18 The list of documents is in [Annex VII](#).

19 The Chairman reminded the Council that 21 June had been declared “World Hydrography Day” by the UN General Assembly (by Resolution A/RES/60/30, in November 2005). He then invited the Director of the International Hydrographic Bureau (IHB), Mr Hugo Gorziglia, to address the Executive Council.

20 Mr Gorziglia presented the World Hydrography Day as a special opportunity to highlight the importance of learning more about the oceans and seas, and of close cooperation between the IHB and the IOC. The theme for this first World Hydrography Day is “85 years of the IHO’s

contribution to worldwide safety of navigation.” The full text of Mr Gorziglia’s statement is in [Annex III-C](#).

2.5 ROGER REVELLE MEMORIAL LECTURE

21 Dr John Church, of the CSIRO, Australia, and Chair of the Joint Scientific Committee of the World Climate Research Programme, delivered the 2006 Roger Revelle Memorial Lecture under the title “Global Sea Levels: Past, Present and Future”. He also co-chaired recently a WCRP Workshop on Understanding Sea-Level Rise and Predictability, which took place in UNESCO, Paris, 6–9 June 2006.

22 Dr Church addressed the factors governing sea-level rise; he summarized the various scenarios of sea-level change and the actions required to reduce the present uncertainty in its prediction. He also identified requirements for additional research, technical development and collection of sustained systematic observations. The Roger Revelle Memorial Lecture 2006 will be published in the IOC Technical Series.

23 On this occasion John Church was presented the IOC Roger Revelle Medal by the Chairman.

3. DEVELOPMENTS SINCE THE 23RD SESSION OF THE IOC ASSEMBLY

3.1 REPORT BY THE IOC CHAIRMAN ON THE STATE OF THE COMMISSION

24 The Chairman explained that, under Rule of Procedure No. 8.1a, the Chairman reports on the state of the Commission only to the Assembly. Nevertheless, in keeping with an established practice, he reported on actions taken by himself and the other Officers, on behalf of the IOC, since the 23rd Session of the Assembly (UNESCO, Paris, 21–30 June 2005). The Officers had held a meeting in Buenos Aires in January 2006 to discuss several policy issues, and in particular to plan for this 39th Session of the Executive Council. They were very appreciative of the facilities and hospitality given by the Argentinian Government hosts. Immediately after this meeting, a meeting was held, also in Buenos Aires, with the Bureau of the World Meteorological Organization to discuss ongoing cooperation, including JCOMM, and possible future interactions. This was a most useful exchange, and a similar meeting is planned for early 2007. The WMO Bureau expressed concern that the IOC was not able to contribute as fully as they had hoped to the cost of running the WCRP.

25 The Chairman then informed the Council that the General Conference of UNESCO has set up a Panel to conduct an Overall Review of Major Programme II, Natural Sciences, and Programme III, Social and Human Sciences. The Chairpersons of six Science Programmes were invited to make presentations to the Panel on 10 May 2006. The Chairman of IOC attended on behalf of IOC and made a presentation of the work, following consultations with the other Officers. The conclusions of the Panel are to be finally presented to the General Conference in 2007, but their initial recommendations will be transmitted to the Director-General well before that. The IOC Executive Secretary is a member of the Panel, which is chaired by the Deputy Director-General of UNESCO, Dr Marcio Barbosa.

26 The Chairman reported that, on 24 April 2006, he attended a ceremony at the IOC/IODE Project Office in Ostend, as part of the ODINAFRICA Workshop, his first visit to this facility hosted by the Government of Flanders. The ceremony was honoured by a visit from the Vice-Minister-President of Flanders, Ms Fientje Moerman. The Chairman thanked her and her

Government on behalf of IOC for their excellent support. He expressed the hope that many more delegates will have an opportunity to visit Ostend and see IOC in action at its best. Earlier, on 8 November 2005, he attended a ceremony in Helsinki to mark the opening of Dynamicum, the new joint premises of the Finnish Meteorological Institute and the Finnish Institute for Marine Research. Again it was a pleasure to thank personally the President of Finland, H.E. Ms Tarja Halonen, for the Finnish Government's support to the work of IOC on tsunami warning systems in the Indian Ocean. Finally, he informed the Executive Council that, recently, he had attended the UN Informal Consultative Process on Oceans and the Law of the Sea, in New York, with the IOC Executive Secretary.

27 The Chairman reported that the IOC Officers, Alphonse Dubi and Mario Ruivo, participated in The Ocean Policy Summit (TOPS) 2005, International Conference on Integrated Ocean Policy: National and Regional Experiences, Prospects, and Emerging Practices, held in Lisbon, Portugal, 11–13 October 2005.

28 Argentina highlighted the importance of the Joint Consultative Meeting of the IOC Officers and WMO Bureau Members and referred to the Overall Review of Major Programme II, Natural Sciences, and Programme III, Social and Human Sciences and the need for better coordinating IOC's activities with those of UNESCO in the field of social sciences.

29 Italy seconded Argentina and announced that Italy will support this position in UNESCO in the framework of the Overall Review.

3.2 REPORT BY THE EXECUTIVE SECRETARY ON PROGRAMME AND BUDGET IMPLEMENTATION

30 The Executive Secretary introduced this item. He presented the Executive Council with a report on the work accomplished since the previous session and on the implementation of the IOC budget for the period 2004–2005. He then focused on salient aspects of the work of the IOC in the last year and elaborated on opportunities and challenges that the Commission faces and needs to resolve.

31 He stressed that all IOC capabilities were put to the test to discharge the responsibility of organizing the tsunami response in the Indian Ocean entrusted to it by UNESCO. This effort has been particularly successful, leading to: (i) the establishment of capabilities to detect a tsunami wave; (ii) 25 new seismological stations already functioning, compared to the five instruments that detected the 26 December 2004 event; and (iii) the establishment of 26 new Tsunami Information Centres, acting as focal points, with the task to establish national plans for tsunami preparedness and awareness. The IOC Executive Secretary then mentioned other salient aspects of programme implementation; in particular: the decision of GLOSS to upgrade a subset of its global sea-level network so as to broadcast information in real time, for servicing tsunami early-warning purposes; other ocean services being developed under the technical guidance of JCOMM; IOC's new facilities in Ostend—the IODE Programme Office—with 1,100 m² of office space generously donated and supported by the Flemish Government, serving as a hub for capacity-building. The Executive Secretary also reported that the Capacity-Building Strategy is making significant progress; a good example of this was a very fruitful seminar with the directors of East African marine centres who met to discuss common problems and priorities. He thanked Sweden for supporting this very relevant work in Mozambique.

32 Concerning financial aspects, the IOC Executive Secretary reminded the Executive Council that the year 2005 started on a worrying note, the announcement of a 19 percent reduction in the Regular Budget contribution from UNESCO for the biennium 2006–2007.

Despite these fears, 2005 actually produced the largest annual budget ever for the Commission, because of the extra-budgetary resources received for the tsunami response, with \$ 6,190,105 of additional funding from extra-budgetary sources specifically allocated to tsunami-response actions in the Indian Ocean region in 2005. Counting these additional funds, the total amount of resources available for programme implementation in 2005 was \$ 13,199,755, of which, \$ 10,827,895 was from sources other than the UNESCO Regular Budget, the latter representing only 18 percent of the total available funding. This continued a trend, since in the 2002–2003 biennium the total resources available for programme implementation were \$ 7,795,862, of which, \$ 4,551,962 was from extra-budgetary resources, with the UNESCO Regular Budget representing 41 percent of the total available funding.

33 The additional extra-budgetary resources for the tsunami response were earmarked for the Indian Ocean, but the coordination of tsunami-related activities has increased worldwide, and therefore the IOC Regular Budget is still under severe pressure. It was only thanks to the contributions of the Governments of Australia, Barbados, Chile, France and Italy, and of WMO, that it was possible to advance tsunami coordination activities in other regions. In addition, the personnel responsible for tsunami activities is financed by extra-budgetary contributions and managed through short-term contracts, hence projecting an unsustainable scenario. Overall, there is also a significant disproportion between the number of staff covered by the UNESCO Staff Allocation (9 professionals and 12 general service posts for the current biennium) and the total staff number (53 people).

34 The Executive Secretary restated the fact that, following the decision of the 23rd Session of the IOC Assembly, the IOC is currently facing a critical financial situation with regard to its budget, not so much in terms of the total funding available as in terms of unbalanced distribution among the MLAs of the IOC Programme and Budget and of the severe reduction in the regular budget. IOC Resolution XXIII-16 offered a pragmatic transitory solution, but at the same time produced undesired effects on several important programmes. Among them is the fact that the overall amount available for regional activities, after paying for staff and fixed costs, is \$ 75,000 for two years for seven IOC regional subsidiary bodies.

35 The Executive Secretary called upon the Executive Council to respond to the challenge to identify innovative and feasible ways of financing the Commission's regional work and to provide a sustainable framework for global programme development. The Executive Secretary urged Member States to participate actively in the work of the intrasessional Committees on Programme and Budget and on Medium-term Strategy, in order to further examine the situation and provide appropriate guidance and solutions.

36 The Executive Secretary then introduced the Overall Review of Major Programme II, Natural Sciences, and Programme III, Social and Human Sciences, mandated by the last General Conference of UNESCO. While not being a programme or a division of UNESCO, IOC is part of this Review, being integrated into UNESCO Programme and Budget as one of the Sub-programmes of Programme II. The Review Committee—of which the IOC Executive Secretary is a member—has so far expressed concerns about the visibility and importance of Programme II within UNESCO, given the reduced budget and the wide variety of activities. From an efficiency and effectiveness standpoint, a particular difficulty lies in properly factoring the value of IOC programmes and activities that are not funded by UNESCO or IOC, identifying criteria to better measure the impact of UNESCO and its IOC's work. The Review Committee will meet in July 2006 to discuss ideas that could be considered jointly with the guidelines for the Medium-term Strategy of UNESCO at the forthcoming session of the Executive Board of UNESCO in September 2006. Therefore, the discussion on the IOC Medium-term Strategy at the present

Session presents an opportunity to provide inputs to the Review and ultimately to the role of the IOC within UNESCO's Medium-term Strategy.

37 Argentina, Australia, Belgium, Brazil, China, Cuba, Dominican Republic, India, Italy, Japan, Kuwait, Nigeria, Portugal, Russian Federation and Venezuela shared the concerns expressed by the Executive Secretary with respect to the shortfall in funding and the resulting unbalanced budget for programme implementation. They agreed that the UNESCO Overall Review of Major Programmes II and III provided an opportunity for IOC to raise its visibility and coordinate its programmes with those of the Social Sciences sector of UNESCO.

38 Argentina stressed the importance of an effective application of the Resolutions of the IOC Governing Bodies, and considered it essential to evaluate the tasks of the IOC Subsidiary Bodies in the light of the results and the specific products that flow from them. Argentina also referred to the recommendations of the external auditor, which have not been yet fully implemented. With respect to the budget question, Argentina emphasized the chronic problem of the IOC's underfunding, which demonstrates that the solutions tried so far are insufficient, and that it is therefore necessary to seek imaginative ways to deal with the situation, and thus to produce a more stable financial situation. In this context, Argentina suggested the creation of an effective network of associates, as well as the possibility of establishing a more robust juridical framework for the Commission, possibly based on the experience of other intergovernmental organizations, such as the World Heritage Centre.

39 Japan requested the Executive Secretary to reflect its extra-budgetary financial contribution to WESTPAC properly in his report on budget execution. The Executive Secretary agreed to do this.

40 Several Member States made a number of pertinent programme-related comments, notably with regard to marine biodiversity, operational oceanography, ocean services, ocean sciences, marine pollution, Member States' individual contributions to regional activities, capacity-building and national institutional developments in ocean affairs.

41 **The Executive Council agreed** that the time is ripe to engage in a fresh analysis of programme implementation, not only concerning developments in science and technology, but also actual changes in the Commission's financial and management capacities. The analysis should also provide clarification of why the IOC's programmes are unequally important, but also of how they link to and complement the programmes of other international organizations. **It further agreed** that, at this stage of its development, the Commission and its Member States need to find innovative and robust ways of financing its activities so as to be able to address effectively its strategic ambitions and goals, both at the global and regional levels, bearing in mind that extra-budgetary funds do not necessarily result in a sustainable programme of work.

4. PROGRAMME MATTERS REQUIRING DECISIONS BY THE EXECUTIVE COUNCIL

4.1 GENERAL POLICY ISSUES

4.1.1 Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-Economic Aspects

42 The Executive Secretary introduced this item. He recalled IOC's commitment to play an active role in the establishment of the UN Global Marine Assessment and the steps to be taken

by the Commission. The World Summit on Sustainable Development (Johannesburg, South Africa, 26 August–4 September 2002) agreed to establish by 2004 a regular process under the United Nations for global reporting and assessment of the state of the marine environment, including socio-economic aspects, both current and foreseeable, building on existing regional assessments (called the Regular Process). Referring to the developments concerning the Regular Process, he further recalled that the UN General Assembly at its 60th Session (A/RES/60/30, paras. 89–96) decided to launch the start-up phase, the Assessment of Assessments (AoA), to be completed within two years, as a preparatory stage in the formal establishment of the Regular Process.

43 The primary aims of the AoA are (UNGA doc. A/60/91): to assemble information on, and carry out a constructive appraisal of, past or on-going assessments relevant to the marine environment; to identify gaps and uncertainties in scientific knowledge and current assessment practices and assess how these assessments have been communicated to policy-makers at the national, regional and global levels; and to produce a framework and options for the Regular Process itself.

44 The organizational elements of the AoA include: (i) an ad hoc Steering Group to oversee the execution of the AoA; (ii) two United Nations agencies to co-lead the process; and (iii) a Group of Experts to undertake the AoA.

45 The members of the Ad hoc Steering Group are to be selected from the representatives of Member States by the President of the General Assembly; the Steering Group will also include a representative of each of UNEP, IOC, FAO, IMO and WMO. UNEP and the IOC of UNESCO have been invited by the General Assembly through Resolution A/RES/60/30 to be the joint lead agencies, under the guidance of the Ad hoc Steering Group. The composition of the Group of Experts, who will be proposed by the two lead agencies, will be approved by the Ad hoc Steering Group and communicated by it to the Member States of the UN.

46 In relation to the financial aspects of the AoA, UN Resolution A/RES/60/30 requires that AoA “...be financed through voluntary contributions and other resources available to participating organizations and bodies, and invites Member States in a position to do so to make contributions.”

47 The first meeting of the Ad hoc Steering Group was held at the UN Headquarters, New York, 7–9 June 2006. The meeting elected Professor Elva Escobar (Mexico) and Dr Peter Harris (Australia), as Co-Chairpersons of the Ad hoc Steering Group.

48 The matters considered at the Steering Group meeting included adoption of a tentative two-year work plan and budget as well as the criteria for selection of the group of experts and its terms of reference.

49 The Steering Group agreed a budget of \$ 2.11 million for the implementation of the AoA. According to the work plan endorsed by the Steering Group, the earliest possible date for the commencement of the AoA work is October 2006, with a completion date of October 2008.

50 The Report of the first meeting of the Ad hoc Steering Group will be made available to Member States shortly.

51 The USA and Belgium informed the Executive Council that they will consider providing limited financial support for the first meeting of the Group of Experts.

52 The Executive Council stressed the importance of the Regular Process and AoA as its preliminary phase and expressed its appreciation of the work carried out to date by IOC and UNEP. It emphasized that the Regular Process will underpin the application of the ecosystem approach to the management of the ocean and its resources.

53 The Executive Council noted that both the Science and Ocean Observation Programmes of IOC should be involved in the evolution of the Regular Process. The Executive Secretary pointed out that, as regards the selection of the experts by the lead agencies, consultations will be carried out with the Member States as widely as possible.

4.1.2 IOC Draft Medium-term Strategy (2008–2013)

54 IOC Vice-Chairman, Javier Valladares, introduced this item. The Assembly, at its 23rd Session, in response to the document “We Have a Problem” (IOC-XXIII/2 Annex 8), established, through Resolution XXIII-15, an ad hoc Working Group to, among other charges, “*consider possible future scenarios for the organization that could be used to reformulate its mechanisms and medium- and long-term plans predicated on IOC mission priorities and on a consistent set of programme performance metrics.*” Additionally, the Assembly instructed the Executive Secretary to prepare an IOC draft Medium-term Strategy 2008–2013 for the consideration of the Executive Council at its 39th Session. Considering the clear linkages between these decisions, the Secretariat prepared document IOC/EC-XXXIX/2 Annex 3 which includes both a report on the activities of the Working Group, from IOC Vice-Chairman, Javier Valladares, and draft guidelines for an IOC Medium-term Strategy 2008–2013 prepared by the Secretariat.

55 Vice-Chairman Valladares indicated that, in facing the “problem”, there is a unique opportunity for reshaping IOC as a whole, and for defining or identifying a stable financing mechanism for its programmes and perhaps also for developing a Convention to provide the Commission with a stronger juridical framework. He recalled the relevant role IOC plays in the United Nations system, in promoting international cooperation on ocean issues, as well as in the coordination of programmes in ocean research, observations/services and capacity-building. He stressed the dramatic challenges IOC is facing, with severe budget restrictions, but also with new opportunities for the development of operational services, as demonstrated by the efficient work of IOC in, for example, the response to the Indian Ocean tsunami of 26 December 2004. As possible immediate actions, he proposed to revisit the definition of the IOC Main Lines of Action, focusing on the promotion of marine scientific research and operational oceanography, jointly with new technologies and the provision of a development framework for ocean and coastal services, with capacity-building as a cross-cutting programme. Furthermore, Vice-Chairman Valladares suggested that Member States should agree on: (i) priorities for IOC’s response to targets and goals defined within the UN system; (ii) exploring long-term reinforcement of IOC’s visibility and response capabilities; (iii) setting the Commission up as a specialized body dealing with the global and regional/local needs related to the oceans; and (iv) taking into consideration the presence of non-governmental organizations, and all this based on a strong regional participation and commitment of the Member States.

56 With respect to the second part of the mandate given to the Working Group, he listed several performance-indicator systems applied by governments of IOC Member States and expressed the need of professional advice to complement the efforts of the Secretariat in this area.

57 Member States reflected, in their interventions, a general agreement with the views expressed by Vice-Chairman Valladares and congratulated him for his presentation. Several

Member States referred to the budgetary restrictions IOC is facing and called for an innovative and realistic approach to finances, given that UNESCO is not likely to increase resources for the Commission. In this regard, Argentina, supported by Chile, Portugal, the Russian Federation and Venezuela, expressed their willingness to explore the establishment of a Convention or similar instrument to better reflect the Commission's status as a specialized intergovernmental body within the UN system, to have a binding mechanism for Member States *vis-à-vis* the mandate of the Commission and to provide the Commission with a sustainable financial framework.

58 The Russian Federation stressed that the mission statement of IOC in the statutes should explicitly reflect its activities in the field of ocean observation and monitoring and oceanographic data exchange. Several Member States pointed out specific themes that need to be covered by an eventual Convention, such as deep-sea marine ecosystems, large marine ecosystems, monitoring of coastal zones, and the broad scientific assessment of the state of the oceans.

59 Canada, China and the United States of America supported the need to establish a set of measurable outcomes and performance metrics for the activities of IOC for management purposes. In this regard, the United States of America offered technical assistance to the Secretariat of the Commission to reinforce IOC's management tools.

60 The Executive Council recognized that the fiftieth anniversary of the Commission, in 2010, will be an important milestone in the Commission's history. It requested the IOC Vice-Chairman, Professor Mario Ruivo, and the former IOC Chairman, Mr Geoff Holland, to work in co-operation with the Officers of the Commission and of its Subsidiary Bodies, and with other persons well vested in the history and the activities of the IOC, as appropriate, to prepare suggestions for the celebration of this occasion, for presentation to the Member States for action. The Executive Council also noted the forthcoming tenth anniversaries, in 2008, of the International Year of the Ocean and of Ocean Expo'98, and considered that these anniversaries, as well as the UN Commission on Sustainable Development's review of its progress on ocean issues, in 2014, may provide opportunities to enhance the visibility of the IOC and its programme of work at the global and regional levels.

61 The Chairman called on Member States to participate actively in the intra-sessional Working Group on the Medium-term Strategy and to take this as an opportunity to strengthen IOC.

62 The open-ended Intra-sessional Committee on the Medium-term Strategy 2008–2013, chaired by the Vice-Chairman responsible for programme and budget and finance matters, Captain Javier Valladares (Argentina), comprising Argentina, Australia, Brazil, Canada, Cuba, Egypt, Finland, France, Germany, India, Italy, Japan, Mexico, Nigeria, Norway, Portugal, Republic of Korea, Russian Federation, South Africa, Sri Lanka, Sweden, Turkey, United Kingdom, United States of America, Venezuela and WCRP, met three times during the present session of the Executive Council, on 22, 23 and 24 June 2006.

63 The Committee considered the need to provide the IOC contribution to the formulation of the UNESCO Medium-term Strategy for 2008–2013 (34 C/4), which will be considered by the Executive Board of UNESCO at its 175th and 176th Sessions, and submitted to the UNESCO General Conference, at its 34th Session, for approval.

64 Considering the guidance provided by UNESCO's Principles and Guidelines in the Preparation of the Draft Medium-term Strategy for 2008–2013 (Resolution adopted on the reports of Commissions I to V, on 20 and 21 October 2005), the Committee identified four high-

level objectives as the IOC's fundamental contribution to UNESCO's Medium-term Strategy for 2008–2013:

- Prevention and reduction of the impacts of natural hazards;
- Mitigation of the impacts of, and adaptation to, climate change and variability;
- Safeguarding the health of ocean ecosystems;
- Management procedures and policies leading to the sustainability of coastal and ocean environment and resources.

65 The four high-level objectives will be achieved through the promotion and intergovernmental coordination of ocean sciences, services, observations, data management and related activities, including transfer of technology and capacity-building, at the regional and the global levels, and with due consideration given to integrated ocean and coastal-zone management. The four high-level objectives will be met through specific activities based on the following three main lines of action:

- Main Line of Action 1: The science of climate and climate change and of integrated ocean and coastal-zone management, including natural hazards;
- Main Line of Action 2: The coordination of activities in ocean observations, data management and ocean services;
- Main Line of Action 3: Capacity-building, transfer of technology and improved ocean governance arrangements, at regional and global levels.

66 The Committee also invited Member States and subsidiary bodies to suggest mechanisms to make the budgetary system more sustainable and to instruct the Executive Secretary, with technical expert assistance provided by Member States, to establish and improve appropriate performance metrics.

67 **The Executive Council adopted Resolution EC-XXXIX.1.**

4.1.3 IOC Participation in the International Polar Year 2007–2008 and in the International Year of Planet Earth 2007–2009

68 The Director of the Programme Office for the International Polar Year (IPY), David Carlson, introduced this item.

69 IPY enjoys the full sponsorship of ICSU and WMO. IOC is represented ex officio on the Joint Committee overseeing IPY planning. IPY is built up from scientific projects with international participation. Each IPY project has agreed to: share data openly and freely; include an outreach programme; and demonstrate its ability to include the local and the scientific polar communities in IPY projects. Of more than 1,000 initial expressions of interest, 400 coordinated proposals were invited, leading finally to slightly more than 200 endorsed projects. An overview of these 200 projects was provided.

70 Numerous Member States expressed their strong support for IPY and provided overviews of their substantial national commitments to support IPY projects.

71 The Russian Federation expressed its concern regarding IOC participation in IPY, considering it insufficient and in particular not fully compliant with Resolution EC-XXXVII.3, which called for development of a plan for IOC's participation in the science initiatives of the IPY.

72 The United States of America expressed its willingness to work with interested Member States on the development of an Arctic GOOS Regional Alliance.

73 The Co-President of JCOMM indicated the ongoing cooperation in IPY through several IOC programmes, including IODE and GOOS.

74 In response to the reservation of the Russian Federation, the Head of the GOOS Project Office noted that IPY planning was a bottom-up, scientific-community-driven process and that IOC's obligation to develop a plan had been met through its active and continuing participation in the IPY Joint Planning Committee, including full involvement in the review of over 1000 proposals from the worldwide scientific community, which led to the final IPY Plan comprising over 200 projects, of which, 60 are focused on the ocean.

75 WMO indicated their strong support for IPY and pointed out that over 60 of the 200 IPY projects focused on the oceans.

76 The Executive Council reconfirmed its support for the ongoing IOC contributions to the organization and conduct of the IPY, noting the concern expressed by the Russian Federation about the lack of an IOC plan for IPY. Noting that over 60 of the IPY projects are related to physical oceanography, biodiversity and sea-ice processes, the Executive Council instructed the Executive Secretary to prepare an IOC Web document reflecting the main contributions of IOC Member States to the IPY, as requested by Resolution EC-XXXVII.3. With regard to the IPY legacy, the Executive Council stressed the need to establish a mechanism to sustain the observation infrastructure established during IPY. **It agreed** that GOOS, JCOMM and IODE should play active roles in this process and support future observing systems in polar regions. It also urged IOC Member States to provide sufficient resources to implement all the oceanographic proposals in the IPY Plan.

4.1.4 Secretariat Report on the Global Earth Observation System of Systems (GEOSS) Implementation

77 The Under Secretary of Commerce for Oceans and Atmosphere and Administrator of the US National Oceanic and Atmospheric Administration (NOAA), Vice-Admiral Lautenbacher, spoke on the Global Earth Observation System of Systems (GEOSS), in his capacity as the Co-Chair of the Group on Earth Observations (GEO). He pointed out that the IOC is the lead agency on one of the first GEO deliverables—establishing tsunami warning and mitigation systems—and congratulated the IOC Executive Secretary on his leadership in steering the work of the IOC and implementing the Executive Council Resolutions on coordination for tsunami warning systems.

78 Vice-Admiral Lautenbacher then recalled that the 1250th drifting buoy was deployed in September 2005, and that this was the first component of the Global Ocean Observing System (GOOS) to be fully implemented. At this important milestone, he stressed that the oceans are the key to understanding the Earth's many systems, and implementing GEOSS will not be possible without a complete Global Ocean Observing System. He emphasized that, on the other hand, GEOSS is vital to the future of the oceans, for this will provide opportunities for GOOS to incorporate biological and chemical measurements which are so important for monitoring, measuring and managing the health of the ocean.

79 Vice-Admiral Lautenbacher then introduced the GEO annual Work Plan to achieve the GEOSS 10-year Implementation Plan which, for 2006, identifies 96 specific benefit-driven activities that address such needs as capacity development in small island communities,

sustainability of marine ecosystems, durability of disaster-monitoring networks, and establishment of global charters for satellite communication. The IOC is identified as either a lead or contributing organization to 21 of these action items. He noted, in particular, important actions to be addressed by GEO, including: (i) facilitating the free and open exchange of data and information; (ii) strengthening regional, real-time observation and communication networks. Vice-Admiral Lautenbacher emphasized the IOC's and the ocean community's role and responsibility in those areas, and noted that the quality of the GEOSS will depend on the willingness of members and participating organizations to ensure free and open exchange of data.

80 Vice-Admiral Lautenbacher expressed his appreciation of IOC's effort for its Pacific Tsunami Warning Centre and the relevant Assembly resolutions, which have been at the forefront of international action to address tsunami events. He also stressed the importance of conserving the present forward momentum on tsunami and related coastal-hazard issues while they still hold the world's attention. In particular, he emphasized the importance of focusing on the development of a multi-hazard approach to disasters, from tsunamis to hurricanes, flooding, earthquakes, volcanoes and other natural disasters.

81 Building on existing systems and leveraging the power of observational systems, such as Argo, GLOSS and others, GEOSS will work to identify and fill gaps in coverage by providing a sound scientific basis for policy- and decision-making. In this context, Vice-Admiral Lautenbacher again emphasized the importance of cooperation and partnership between IOC and WMO through JCOMM, not only to making the GEOSS operational but also to realize GEOSS goals. He encouraged the Member States to work closely with GEO to help shape the future of GEOSS, particularly providing IOC input to GEO annual Work Plans. He concluded by wishing a continuing partnership between GEO and IOC. The full text of Vice-Admiral Lautenbacher's statement is in [Annex III-B](#).

82 The IOC Executive Secretary informed the Executive Council that, since the GEO Secretariat was established at the WMO in Geneva (2005), IOC has remained in close cooperation with GEO not only in the activities of the GEO Working Group on Tsunami Activities but also in developing annual Work Plans to realize the GEOSS 10-Year Implementation Plan. He noted that, in cooperation with the scientific community concerned and other ocean-related organizations, the IOC has provided expert advice in the drafting of the 10-Year Implementation Plan and the 2006 Work Plan, focusing on enhancing the capacity of existing ocean observing systems. For better coordination of the ocean-related international bodies and the GEO, representatives of GOOS, JCOMM, POGO and IOC decided, during the Second Meeting of GEO (GEO II, Geneva, 13–5 December 2005), that IOC should act as the ocean voice in GEO and decided to conduct consultations to better coordinate inputs to GEO through an informal forum of experts and representatives of relevant organizations/programmes. These consultations are open to any ocean experts and representatives active in GEO. The objectives are to: (i) share information on GEO-related activities and plans within their organizations and programmes; (ii) contribute to GEO through consolidated and integrated input, under the coordination of IOC; and (iii) provide a direct link to each programme/organization to contribute to the implementation of GEOSS.

83 In the development of the 2006 Work Plan, the forum provided the GEO with two proposals: (i) to undertake a 'gap analysis' of GEOSS *vis-à-vis* GOOS (as proposed to GSSC-IX, Paris, 6–8 March 2006); and (ii) a proposal on a pilot project on chlorophyll observation through satellite ocean-colour observations under the umbrella of the coastal module of GOOS (as proposed and approved by GSSC-IX, and to be led by GOOS and POGO). These proposals

would be contributions to GEO from the ocean community, and, at the same time, possible areas of activity in which GEO could contribute to ongoing/planned ocean observations.

84 On behalf of the ocean organization and programmes active in GEOSS, Professor David Farmer, Dean of Oceanography at the University of Rhode Island (USA), will maintain liaison between them and the GEO Secretariat. The Executive Council noted that UNESCO, IOC (Executive Secretary) and GOOS (Head of GOOS Project Office or the Chairperson I-GOOS) are directly represented in GEO as Participating Organizations/Programmes, and provide substantial input via various ocean-related programmes, such as IODE, and JCOMM. Moreover, Professor David Farmer (USA/Canada) will maintain liaison between the ocean organizations active in GEO and the GEO Secretariat on ocean matters.

85 The Executive Council expressed its appreciation to Vice-Admiral Lautenbacher for his statement and on the successful work of GEO so far. It also expressed its appreciation of the leadership of IOC Executive Secretary in steering the work on the establishment of tsunami warning and mitigation systems, as well as his contribution to the relevant GEO activities. The Executive Council noted that such efforts should be made in line with a multi-hazard approach, and instructed the Executive Secretary to report to GEO on the global coordination of the development of a marine multi-hazard warning and mitigation system.

86 The Executive Council recognized the broad areas of interest incorporated into the GEOSS 10-Year Implementation Plan, as well as the GEO annual Work Plan, and stressed the importance and relevance of the IOC's mandate to several of the GEO's tasks. It instructed the Executive Secretary to identify an appropriate set of GEO tasks in the subsequent Work Plan for which IOC could take the lead or participate in, with a view to maximizing the synergy between IOC and GEO activities, and to enhancing efficiency by focusing on key activities.

87 The Executive Council also noted that, in the future, a real-time marine information system in GEO (GEO-Netcast) should be developed in the context of GEOSS and that such activity should be lead by IOC, with input from its programmes, including IODE, GOOS and its regional programmes, considering its interoperability and integrity with other data systems, such as the WMO Information System, as well as relevant national and regional activities.

4.2 OCEAN SCIENCES

4.2.1 Cooperation between the Census of Marine Life and IOC Main Lines of Action

88 Henrik Enevoldsen, IOC Secretariat, introduced the item. By Resolution XXIII-3 (Census of Marine Life), the IOC Assembly instructed the IOC Executive Secretary to report to the Executive Council at its 39th session on: (i) the potential of the major elements of the Census of Marine Life initiatives [History of Marine Animal Populations (HMAP); Ocean Realm Field Projects; and the Future of Marine Animal Populations (FMAP)] to contribute to the IOC Main Lines of Action, in particular Ocean Sciences and GOOS, as well as to other activities supported by IOC, such as the International Polar Year; and (ii) the contributions that IOC Main Lines of Action are making to the Census of Marine Life.

89 To assess the ongoing interaction, as well as the potential for interaction, all IOC programme coordinators have been requested to make an assessment. The immediate and major focus is in IOC Main Line of Action 2, IODE. Resolution XXIII-3 urged Member States, particularly those whose scientists are not already involved in the Census of Marine Life or in its Ocean Biogeographic Information System (OBIS) initiative, to support active participation, with

a view to contributing to the achievement of the goals of the Census of Marine Life by 2010; the Resolution also encouraged the integration of OBIS into the IODE.

90 During the OBIS Managers' Committee Meeting at the Senckenberg Natural History Museum, Frankfurt, Germany, 6–7 November 2005, and during the IODE Officers Meeting in Ostend, 6–7 February 2006, it was decided to prepare an IODE Circular Letter to all National Oceanographic Data Centres (NODC), to ask them to provide information on potential or existing collaboration between IODE and OBIS. The letter was circulated just prior to the 39th Session of the Executive Council. The results are expected to provide the basis for the formalization of future data exchange between IODE and OBIS. The replies so far indicate that more than 80% of data centres have not yet collaborated with OBIS, but that more than 60% manage species distribution data, and that close to 90% of these centres are willing and able to contribute their data to OBIS. These results will be followed up by the Secretariat and IODE in the coming months.

91 Within the IODE's ODINAFRICA, there have been two training sessions: one at the IOC Project Office for IODE, Ostend, Belgium, 18–22 April 2005; and one in Grand Baie, Mauritius, 22–26 August 2005. Both were on Marine Biodiversity Data Management, with part of the curriculum intended to assist African NODCs in generating input and in generally collaborating with OBIS. A third training session was jointly organized by IODE and MarBEF (Marine Biodiversity and Ecosystem Functioning, which runs the European node of OBIS); it took place at the IOC Project Office for IODE, Ostend, Belgium, 6–11 March 2006.

92 Also within ODINAFRICA, IODE has organized a series of marine biodiversity data-mobilization workshops. The first one, on molluscs, was held at the IOC Project Office for IODE, Ostend, Belgium, 13–22 March 2006, with a view to extracting data from various sources (mainly printed publications) for contribution to the African node of OBIS. Another two are planned, for November 2006 and for March 2007, on sponges and polychaetes, respectively.

93 Dr Ian Poiner, member of the CoML International Steering Committee, was invited to make a presentation to the 8th GOOS Scientific Steering Committee Meeting (GSSC) in Melbourne, Australia, 21–23 February 2005. The GSSC welcomed continued and enhanced cooperation with CoML and fully supported making all relevant GOOS data available as a contribution to CoML. Similarly, CoML makes an important contribution of non-physical data to GOOS, as already indicated in the Implementation Strategy for the Coastal Module of GOOS (IOC/INF-1217).

94 The Secretariat informed the Executive Council that it will continue to identify areas of potential interaction between CoML and IOC programmes, with a view to identifying areas in which IOC could benefit from and contribute to CoML.

95 Several Member States gave examples of their strong national commitment to and involvement in CoML.

96 The Executive Council welcomed the progress in the interaction between IOC and CoML and called for its continued development.

4.2.2 Report of the Advisory Group for the Ocean Sciences

97 Vice-Chairman IOC, Dr Neville Smith, introduced this item. The Advisory Group for the IOC Ocean Sciences Section was formed as a result of discussions at the 22nd Session of the Assembly and follow-up discussions at the 23rd Session of the Assembly of the IOC. The

Advisory Group provides advice to the Ocean Sciences Section of the Secretariat on the Ocean Science Programme of the IOC.

98 Dr Smith indicated that he chaired the Advisory Group in his capacity as Vice-Chairman IOC. The Group met in Paris, 9–10 November 2005, and reported on its discussion to the Executive Secretary in December 2005. The discussion was conducted in the context of the IOC Medium-term Strategy (Agenda Item 4.1.2 of the present session of the Executive Council) and provided an opportunity both to examine the Ocean Sciences Section's work and to gather some expert views on future challenges. Many of the views that emerged from the meeting may be mapped onto the Medium-term Strategy.

99 The Advisory Group expressed general satisfaction with the present elements of the Ocean Sciences Programme, but noted the overwhelming constraint due to the insufficient resources made available for IOC activities. The Group advised that a more explicit statement of objectives and strategy for the Ocean Sciences Programme was needed, paying particular attention to relevance and integration. The fundamental role of ocean observations, for research as well as operational ocean systems and services, and the overall cross-cutting relevance of such activities, should be more prominent in the Ocean Sciences Programme strategy.

100 A restatement of the functions of the Ocean Sciences Section, so as to provide guiding principles for the adoption of work and responsibility within the Programme, should be developed. The Advisory Group noted the general weakness of internal and external communication and, in particular, the urgent need to improve communication with Member States.

101 Notwithstanding relatively recent restructuring of the Science Programme of the Commission, the Advisory Group concluded that the structure of the Programme should be modified so as to clearly show the main strategic objectives and more explicitly to reflect the relevance of the Programme to the mandate of IOC and the needs of the Member States. With respect to existing themes, the Advisory Group recommended:

- Strengthening the IOC's involvement in the World Climate Research Programme;
- Giving greater priority to the integration of presently distinct elements and the relationships among them;
- Assigning high priority to the integration of the science programme with other IOC Programmes, particularly those on ocean observation and on data and information management; and
- Providing more attention to presenting work in its policy context, emphasizing its possible application and utility within a common framework.

102 Regarding future activities, the Advisory Group recommended the incorporation of several new aspects and/or raising the priority of existing actions, including:

- The impacts of climate variability and climate change on the marine environment and on its living resources and ecosystems;
- Explicit recognition of coastal research as a primary element (Sub-Programme), including (the overlapping) climate impacts introduced above, direct human influences, integrated coastal management, natural marine hazards and coastal environmental forecasting;

- Early introduction of marine assessment as a primary element (Sub-Programme), with emphasis on the science that will underpin the Regular Process for the Global Marine Assessment and its Assessment of Assessments; and
- Introduction of an underpinning, cross-cutting element in marine modelling, recognizing the need for IOC to exercise its mandate and responsibility in new technology and its unique position which allows it to facilitate interaction and coordination among many existing activities.

103 The Advisory Group emphasized the need for effective cooperation and integration among the new and existing themes, recognizing the inevitable overlaps, but also the strengths that arise from successful joint development and interoperability among the sub-programmes and themes.

104 In conclusion, Dr Smith thanked the members of the Advisory Group for their good work. He noted that their report was a report to the Executive Secretary and, as such, it was not appropriate to provide it as part of the information documents for the present session of the Executive Council. In effect, the report comprised the views of a Group of Experts, not Member States; nevertheless, the Secretariat could provide copies to those with a particular interest in this subject. The report should provide a basis for the Medium-term Strategy and could therefore be used in part as a basis for discussion of the Strategy at the present session of the Executive Council.

105 The Executive Council expressed its appreciation of the report of the Advisory Group and commended the Chairman of the Group for his work and presentation.

106 The Executive Council instructed the Executive Secretary to distribute the Advisory Group's report to the Member States so as to receive feedback from interested Member States and thus assist the preparations for the 24th Session of the Assembly.

107 The Executive Council stressed the importance of resolving the scientific problems in the coastal zone in relation to forecasting, coastal ocean modelling and coastal ecosystems; an ecosystem approach is essential and should underpin any strategic planning in interdisciplinary ocean science.

108 The Executive Council also stressed that measures should be taken to ensure the participation of developing countries in research based on the ecosystem approach.

109 **The Executive Council agreed** with the incorporation of the four new aspects and/or raising the priority of existing actions, provided that, when a new programme is added, its priority is assessed in the light of existing priorities and programmes.

110 **The Executive Council further agreed** on the usefulness of the report in the development of the Medium-term Strategy for IOC, 2008–2013.

4.2.3 Member State Interaction with the WMO-ICSU-IOC World Climate Research Programme (WCRP)

111 The Chairman of the World Climate Research Programme (WCRP) Joint Scientific Committee, John Church, introduced this item. The agreement establishing the IOC as a sponsor of the WCRP, with the WMO and ICSU (Document IOC/INF-1228), requires that annual reports of WCRP activities be presented to the sponsoring organizations, and that budget estimates for the following biennium be submitted for approval by the executive bodies of the WMO, IOC and

ICSU. The Joint Scientific Committee, as a joint subsidiary body of the IOC, is also required by IOC Rule of Procedure 48.3 to report to a Governing Body on its progress in its work.

112 Dr Church highlighted WCRP's past and present programmes, addressing in particular: (i) the role of the oceans in climate variation and change and their forecasting; (ii) WCRP's close links with the ocean observing system coordinated through GOOS, JCOMM and IODE; (iii) the WCRP's role in coordinating the science that underpins the assessments of the Intergovernmental Panel on Climate Change (IPCC), and in contributing to meeting the needs of the UN Framework Convention on Climate Change (UNFCCC).

113 Dr Church invited IOC Member States to provide input to the WCRP. He informed the Executive Council of his role as co-convenor of a Symposium on the Effects of Climate Change on the World's Oceans, to be convened by IOC, PICES and ICES in May 2008, and of the readiness of the WCRP to assist in the development of the IOC science programme and medium-term strategy.

114 The Assembly, at its 23rd Session (UNESCO, Paris, 21–30 June 2005), noted the importance of the work of the WCRP to the achievement of IOC's objectives, and commended the WCRP's effort in coordination. It reaffirmed its continued sponsorship and support of the WCRP, instructing the Executive Secretary to find ways to support the WCRP at a level of at least \$ 125,000 per year through Regular Programme Funds.

115 The Executive Secretary welcomed the report by the WCRP and reminded Member States of the IOC's significant investment in the WCRP and, through it, in its scientific projects, such as CliC and CLIVAR.

116 Several Member States expressed their satisfaction at receiving the report from the WCRP, noting that it helped to forge the desired closer link between the IOC and the WCRP.

117 The Executive Council called on the WCRP to provide annual reports on research of interest to Member States, and on its planned biennial budget and the extra-budgetary resources sought. The Executive Council urged Member States to contribute to the IOC Special Trust Fund for the WCRP. Given the diversity of WCRP's activities and the diversity of Member State interests, the Executive Council also urged Member States to work with the WCRP Joint Planning Staff in order to identify specific ongoing activities or new activities consistent with the aims of the WCRP that could be supported by their contribution to the IOC Special Trust Fund.

4.3 OCEAN OBSERVATIONS AND SERVICES

4.3.1 Follow-up to the Second Session of the WMO–IOC Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM)

118 The co-president of the Joint WMO–IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), Dr Jean-Louis Fellous, introduced this item. He presented the results of the second session of JCOMM (Halifax, Canada, 15–27 September 2005), reviewed the progress that has been made in the Services, Observations and Data Management Programme Areas, and highlighted priority areas for the next four-year period.

119 JCOMM-II was preceded by two events: (i) a scientific conference – “Operational Oceanography and Marine Meteorology in the 21st Century”; and (ii) the deployment of surface drifter #1250 of the Global Drifting Buoy Array, with a special ceremony to commemorate the significant milestone of completion of the first GOOS component to be fully implemented.

- 120 The session itself was notable for a significant improvement over the First Session (Akureyi, Iceland, 19–29 June 2001) in the overall level of, and participation in, the discussions. JCOMM-II adopted a comprehensive Work Plan, elected new co-presidents and coordinators for the Observations, Services and Data Management Programme Areas; it approved a slight re-design in structure which assigned work in capacity-building and satellite data requirements to cross-cutting teams; and awarded Outstanding Service Certificates to Mr Val Swail (Canada) and Dr Neville Smith (Australia). Mr Geoff Holland gave the George Needler Memorial Lecture on operational oceanography, to commemorate the significant contribution of Dr Needler to the development of GOOS and JCOMM.
- 121 The core business of JCOMM takes place within the Programme Areas and is implemented by the corresponding programmes of WMO and IOC. There was a clear recognition at JCOMM-II that the work is progressing well, with broad satisfaction with past achievements and ongoing activities. Key results included: (i) the ocean *in situ* observing system is approximately 56% implemented, with the JCOMM plan driving to full implementation, in principle, by 2012; (ii) a successful integration of ship-based observations has taken place under the new Ship Observations Team; (iii) the value and further development of JCOMMOPS as a major technical information and support portal for *in situ* ocean observing systems has been clearly recognized, including the development of extensive observing-system performance monitoring; (iv) the practical coordination and cooperation between JCOMM and IODE is now almost seamless; (v) an outline of a guide to storm surge forecasting has been prepared.
- 122 The coming inter-sessional period will be a busy one, with great expectations for it to be very productive. Dr Fellous summarized priority issues, including:
- (i) The further development of oceanographic products and services, and the transition to operational oceanography;
 - (ii) An enhanced involvement in and support for natural-disaster prevention and impact mitigation, and the development of marine multi-hazard warning systems;
 - (iii) Full implementation of the ocean observing system and its long-term maintenance on an operational basis, including existing pilot projects, such as Argo and the key ocean satellite missions;
 - (iv) An active engagement with the GOOS community in the implementation of the GOOS Coastal Implementation Plan;
 - (v) Substantial enhancement of JCOMM data management and its integration with IODE and WIS;
 - (vi) A greater involvement of smaller maritime countries, in particular, in the work of the Commission;
 - (vii) An engagement with the private sector in support of the implementation of the JCOMM work programme and of operational oceanography in general.
- 123 Dr Fellous emphasized that the work approved by JCOMM-II will only be accomplished through the investment of resources, both financial and human. A JCOMM-II working group on budget estimated that the resources needed to implement the approved Work Plan would be approximately double those earmarked in the Regular Budget of UNESCO (\$ 189,831 is

provided for the work of JCOMM through MLA 2; an additional, estimated extra-budgetary contribution of \$ 160,000 would be necessary to implement the IOC component of the JCOMM Work Plan). He acknowledged the current contributions of Member States, and urged their continued and increased support for the realization of the ambitious but vitally important Work Plan.

124 The Executive Council expressed its thanks to Dr Fellous for his comprehensive report, and its appreciation of the significant progress that has been made in the coordination activities of the Joint Technical Commission.

125 A number of Member States described their contributions to the work of JCOMM, and some noted specific contributions to the work of the Commission.

126 Canada announced its hosting of the 9th International Workshop on Wave Hindcasting and Forecasting (Victoria, Canada, September 2006).

127 The Republic of Korea offered to host a JCOMM storm-surge symposium in 2007.

128 The Representative of the World Meteorological Organization (WMO) emphasized the strong partnership that exists between IOC and WMO on JCOMM, and the fact that this cooperation is an important highlight in the work of the two organizations.

129 The Executive Council recognized the challenges associated with this collaboration, and noted that JCOMM provided an incentive for the oceanographic and the meteorological communities at the national level to work together for the advancement of oceanography and marine meteorology.

130 The Executive Council also recognized that support from the Regular Budget was not likely to change during the current biennium, and that extra-budgetary funds would need to be secured for JCOMM to accomplish the Work Plan approved by JCOMM-II; it therefore urged Member States to consider providing this extra-budgetary support for specific activities.

131 The Executive Council recognized the importance of complementarity and non-duplication of the activities overseen by JCOMM with those of other bodies and programmes of IOC and WMO and stressed the importance of implementing the activities planned by the Joint Technical Commission through the appropriate programmes and support structures in WMO and IOC.

132 The Executive Council emphasized the importance of communicating the activities of the Joint Technical Commission, both within the WMO and IOC communities and externally. It expressed its appreciation of the initiation of an electronic JCOMM newsletter and of a communications strategy that would help foster this outreach.

133 The Executive Council expressed its satisfaction with the contributions of JCOMM to a developing marine multi-hazard warning system, specifically the work of the Data Buoy Cooperation Panel (DBCP) in fostering the development and use of multipurpose platforms; and the work of GLOSS, in increasing the number of tide gauge stations reporting data via the GTS in real time.

134 The Executive Council restated the importance of capacity-building as a cross-cutting activity across the JCOMM Observations, Services and Data Management Programme Areas, and of these activities within a regional context, for many Member States, needs that should be streamlined into the IOC capacity-building plans and activities.

135 The Executive Council noted the important work of JCOMM *In-situ* Observing Platform Support Centre (JCOMMOPS) in providing a range of technical support functions for the *in situ* observing system, and expressed its appreciation of the work of the former DBCP Technical Coordinator, Etienne Charpentier, in establishing and strengthening this JCOMMOPS.

136 The Executive Council urged that the Work Plan and priorities of JCOMM be incorporated into the IOC Medium-term Strategy.

137 The Executive Council thanked Canada for its offer to host the 9th International Workshop on Wave Hindcasting and Forecasting, and the Republic of Korea for its offer to host a storm-surge symposium in 2007.

138 **The Executive Council adopted Resolution EC-XXXIX.2.**

4.3.2 Secretariat Report on Global Ocean Observing System (GOOS) Programme Implementation

139 The Chairman of the IOC–WMO–UNEP Intergovernmental Committee for GOOS (I-GOOS), François Gérard, introduced this item. He presented an overview of GOOS governance, scientific guidance and implementation bodies and mechanisms, and highlighted the important role of I-GOOS in ensuring the sustainability of the observing system.

140 Dr Gérard then provided an overview of the current state of the climate component of GOOS, followed by a brief history and current status of GOOS Regional Alliances (GRAs) as the primary bodies for the implementation of Coastal GOOS. Following the advice of the GOOS Scientific Steering Committee, and with the endorsement of the I-GOOS Board, he encouraged the Executive Council to consider the formation of a proposed Joint GOOS–GTOS Panel on the Implementation of Coastal Observations (J-PICO), outlined in the background paper IOC/EC-XXXIX/2 Annex 6. He invited broad participation in the planned 3rd GRA Forum, organized by GOOS-Africa, to be held in Cape Town, 14–17 November 2006. The Forum is expected to provide a major opportunity to clarify the role of GOOS Regional Alliances in the implementation of the GOOS coastal module and to define a mechanism for coordinating the GRAs compatible with the long-term strategy of the IOC. Finally, Dr Gérard pointed out that, at I-GOOS VIII, to be held in Paris just prior to the 24th Session of the IOC Assembly, in June 2007, the process for sustaining the global ocean observing system would be initiated and that this meeting would require substantial input and support from Member States to ensure its success.

141 Several Member States stated that GOOS was a critical component of GEOSS and that the advent of GEOSS was potentially a substantial opportunity for sustaining GOOS.

142 Several Member States pointed out that the substantial growth of interest in developing tsunami warning capabilities provides an opportunity for development and strengthening of regional GOOS efforts.

143 Some Member States expressed their interest in the formation of an Arctic GOOS Regional Alliance.

144 Some other Member States expressed the view that GRAs should operate under the auspices of, and not duplicate the efforts of, existing IOC regional subsidiary bodies.

- 145 Brazil thanked the IOC for its continued support of the Rio-GOOS office and highlighted the fact that the office had played an important role as a catalyst of substantial regional observational efforts. Brazil informed the Executive Council that the GOOS Regional Alliance in Oceanography for the Upper Southwest and Tropical Atlantic held its 2nd meeting in Montevideo, Uruguay, 21–23 February 2006.
- 146 Thailand offered to support the South East Asia GOOS secretariat, hosted within the WESTPAC Office in Bangkok, for a period of five years.
- 147 The United Kingdom supported the decision to prioritize outreach and communications in the GOOS Project Office as a vital means of publicizing the GOOS programme and the value of GOOS products, and thus encouraging participation in GOOS activities.
- 148 The representative of the Global Climate Observing System (GCOS) pointed out that the climate component of GOOS was the ocean component of GCOS and, as such, GOOS relied on GCOS to provide reporting and visibility for ocean observations in the context of the UN Framework Convention on Climate Change. GCOS acknowledged the historically strong interaction between GOOS and GCOS and looked forward to continuing this productive interaction and continued financial support from IOC.
- 149 Although some Member States supported the formation of the proposed joint committee on coastal implementation (J-PICO), others expressed serious reservations on the formation of such a committee, fearing that it might involve undoing decisions made by the Assembly at its 23rd Session and that, owing in part to the late availability of the documentation, Member States had not yet had sufficient time to consider the proposal.
- 150 Portugal called for an independent review of the effectiveness of the coastal module of GOOS and a critical evaluation of the capabilities of the GRAs.
- 151 Finally, numerous Member States congratulated the I-GOOS Chairman on his presentation and on the successful work of the I-GOOS leadership since their election at I-GOOS ext-1, UNESCO, Paris, 20 June 2005; several Member States additionally expressed their support for the newly appointed I-GOOS Vice-Chairman, Admiral Hector Soldi (Peru).
- 152 The Executive Council noted the state of development of GOOS and, in particular, its long-term funding; it urged IOC Member States to help develop I-GOOS as a high-level mechanism for taking stock of, and coordinating, Member States' efforts to observe the global ocean and encouraged them to send delegates to the Eighth Session of I-GOOS as the main governing body for GOOS. **The Executive Council decided** that the proposal to establish a GOOS-GTOS Joint Panel for Integrated Coastal Observations (J-PICO) warranted further discussion and instructed the Executive Secretary to provide a revised proposal for the consideration of the Assembly at its 24th Session. **The Executive Council**, however, recognized the need for scientific advice for the implementation of the Coastal Module of GOOS through I-GOOS and **agreed** that I-GOOS should consider an interim arrangement.

4.3.3 Progress with the development of an IOC Strategic Plan for Oceanographic Data and Information Management

- 153 The Chairwoman of the IOC Committee on International Oceanographic Data and Information Exchange (IODE), Dr Lesley Rickards, introduced this item. She recalled that the IOC Strategic Plan for Oceanographic Data and Information Management had been developed in the light of the results of the 18th Session of IODE (IODC-XVIII, Ostend, Belgium, 26–30 April

2005), the 2nd Session of the WMO–IOC Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM-II, Halifax, Canada, 19–27 September 2005) and of the IODE Officers meeting (Ostend, Belgium, 6–7 February 2006), as well as of the collaboration between Lesley Rickards, as Chairwoman of IODE and Robert Keeley, Coordinator of the JCOMM Data Management Programme Area (DMPA). IODE-XVIII had decided to submit a progress report to the IOC Executive Council at its 39th Session and that a draft of the Strategy should be considered by the IODE Committee at its 19th Session, in 2007, and thence be submitted to the IOC Assembly at its 24th Session, in 2007.

154 Dr Rickards explained that the vision statement for the Strategy is as follows: “*A comprehensive and integrated ocean data and information system, serving the broad and diverse needs of IOC Member States, for both routine and scientific use.*” The concept of delivering a data service for the “global ocean commons” (global public good) is central to this vision. The scope of the Strategy is comprehensive and across all of the disciplines within the mandate of IOC; there is no a priori separation of functions based on the lead time for data delivery (e.g., real-time versus delayed mode); and different strategies might be employed to satisfy global, regional and local requirements, and to meet timeliness needs.

155 Within the different components of the oceanographic community, although there are still improvements to be made, the global archiving of some of the individual streams of data is now reasonably well organized. What is lacking is a consistent and unified way to deliver the data to researchers, modellers and other users. This had led to the concept of an “Oceanographic or Marine Data Automatic Teller Machine (ATM)”. This will be a system that will connect data assembly centres to data users wherever they are in the world. The IOC Oceanographic Data and Information Strategy should adopt this approach. Elements of this are already under development, albeit on a limited basis. The key to the successful development of this system will be agreement on standards, including what information to carry with the data and how to check the validity consistently. This implies a unified data-exchange structure including software at the user end to interpret and understand the data. The system will need to be developed bearing in mind three core elements: the client or user view; governance of the strategy; and technical development.

156 The client/user view will address the questions “Where can I send my data to ensure they are preserved?” and “Where can I find data of interest, and how can I get them?” This will result in the following activities or elements of the system: (i) Archive—assemble and preserve data; (ii) Discovery—find what data and information are available; (iii) Exploration—determine what data are needed; and (iv) Delivery—acquire the data of interest.

157 Already there are existing governance structures of IODE and JCOMM. The Strategy will need to avoid interference in the present arrangements but, at the same time, provide a mechanism for an eventual smooth union of now separate ocean data management activities—this also includes major projects which have developed their own strategies. The Strategy will need to recognize a broad set of requirements from the IOC and as such will need careful guidance, both in terms of management and in terms of technical and scientific guidance. There should be an efficient Management Committee that can review and endorse data and information activities. It needs to be small (10–12) in order to be efficient, and able to draw in expertise as required. The future data and information system is likely to be ambitious and, like WMO, will need access to expert advice. Dr Rickards suggested a time-bound Task Team for this task. The Management Committee would be responsible for the development and execution of the Oceanographic Data and Information Management Strategy.

- 158 In terms of technical development, Dr Rickards identified the issues that the development of the future IODE Data System—"the marine data ATM"—should address during the next four years. The major components of this system include metadata, best use of technology, quality-control and capacity-building. By the end of 2009, a comprehensive (and interoperable) data system for IODE should be available. The System should also meet the needs of JCOMM and major science programmes and be compatible (interoperable) with the WMO Information System (WIS).
- 159 Dr Rickards gave an undertaking to provide an update on progress to the JCOMM Management Committee and JCOMM DMCG in October 2006 and a draft report will be submitted to IODE-XIX and the 24th Session of the IOC Assembly in 2007.
- 160 The Executive Council thanked Dr Rickards for her comprehensive and clear progress report.
- 161 Canada informed the Executive Council about the emergence of cabled ocean observation systems, mentioning the VENUS and NEPTUNE projects and noting that these systems, with a broad bandwidth, will generate substantial new volumes of data. Canada called on IODE to take into consideration these new systems when developing the IOC Strategic Plan for Oceanographic Data and Information Management.
- 162 The Executive Council reaffirmed its view that one of the core objectives of IODE is the secure and long-term archival of ocean data and information and that this function should be re-emphasized.
- 163 The Executive Council expressed its appreciation of the transformation of IODE involving the management of biological, chemical and coastal data, while being called upon for its expertise by major initiatives such as GEO/GEOSS. The Executive Council stressed that IODE is a core programme of the IOC, underpinning all the science and observation programmes.
- 164 The Executive Council welcomed the participation of IODE in regional (e.g., SeaDataNet) and global (e.g., GEO/GEOSS) initiatives that promote the development of global ocean data systems. It urged IODE to further establish close collaboration with regional and scientific organizations (and projects) in order to: (i) make available IODE data and information management expertise; (ii) avoid duplication, by establishing joint data and information systems; (iii) raise funding for the implementation of IODE activities, particularly capacity-building, at the regional level. In this regard, the Executive Council instructed the Executive Secretary to ensure that all IOC programmes fully utilize the IODE expertise and systems for their data and information management requirements and thus avoid setting up their own systems; such programmes and projects should include a comprehensive data management plan that incorporates IODE expertise.
- 165 The Executive Council expressed its strong appreciation of the success of the ODIN systems in Africa (ODINAFRICA) and in the Caribbean and South America (ODINCARSA) regions as effective multi-disciplinary and end-to-end capacity-building mechanisms that address marine environmental issues at national and regional level. The Executive Council welcomed the development of ODINs in the Indian Ocean (ODINCINDIO) and the western Pacific (ODINWESTPAC). The Executive Council further welcomed the emerging collaboration of other organizations (e.g., ROPME, NEPAD, CPPS) in the ODINs.

- 166 The Executive Council called on Member States to provide financial and other resources to maintain and further develop ODIN systems.
- 167 The Executive Council noted with appreciation the success of the IOC Project Office for IODE in Ostend, Belgium, and that, during the first year, following the opening in April 2005, more than 160 participants from 65 Member States had received training at the Office. The Executive Council expressed its gratitude to the Government of Flanders for its continued and increased support for the Project Office.
- 168 The Executive Council expressed its concern about the diminishing funds allocated to IODE in the budget resolution adopted by the IOC Assembly at its 23rd Session, as well as the impact of this on the stability of the position of the Head of the IOC Project Office for IODE in Ostend, Belgium; it requested the intra-sessional Working Group on Programme and Budget to address these issues. The Executive Council stressed the need for securing a realistic and sustained funding base for the IODE Programme and, while acknowledging that funding from the UNESCO Regular Programme was unlikely to increase substantially in the near future, it invited consideration of innovative funding approaches which should be based on: (i) establishing agreements with IOC and other programmes, projects and organizations that promote convergence in data and information management activities; (ii) funding of IODE regional capacity-building activities from regional funding sources; and (iii) increased financial and/or in-kind extra-budgetary contributions by Member States.
- 169 The Representative of WCRP stated that the new approach and global portal vision facilitated the collaboration between WCRP and IODE and he invited IODE to discuss the practical aspects of such collaboration, which could involve several WCRP projects, such as CLIVAR and SOLAS.
- 170 The Chairman of I-GOOS, making special reference to IODE's comprehensive and successful capacity-building programmes, called for closer collaboration between GOOS Regional Alliances and IODE to enable the GRAs to fully benefit from IODE.
- 171 The Executive Council expressed its strong support for the visionary development of a global data system and portal "Data ATM" that will focus on joining national and regional data systems to provide global and easy access to a wide variety of ocean data and data streams.
- 172 The Executive Council instructed IODE to ensure that the following elements also be taken into consideration in the IOC Strategic Plan for Oceanographic Data and Information Management: (i) developments within WMO related to the future WMO Information System (WIS); (ii) need for harmonization between the JCOMM and IOC/IODE data management strategies; (iii) application of elements of the IOC Capacity-Building Principles and Strategy in terms of, *inter alia*, relevance, sustainability, value and affordability, to the IOC Strategic Plan for Oceanographic Data and Information Management.

4.4 CAPACITY-BUILDING, TEMA AND PUBLIC AWARENESS

4.4.1 Executive Secretary Report on Implementation of the IOC Capacity-Building Strategy

- 173 The IOC Vice-Chairman concerned with capacity-building, Dr Alfonse M. Dubi, introduced this item. He presented the many challenges involved in developing capacity, and its importance for developing countries. He emphasized the need for capacity-building to be part of the overall IOC Capacity-Building Strategy (IOC/INF-1211).

- 174 The Assembly, at its 23rd Session, through Resolutions XXIII-10 and XXIII-11, instructed the Executive Secretary to: conduct regional assessments of existing capacities to undertake marine scientific research and operational oceanography; pursue and secure new sources of funding and human-resource support for capacity-building; implement the work programme through workshops on innovative leadership, team-building and drafting of regional project proposals; enhance inter-sectoral harmonization of capacity-building activities; and form a Consultative Group on Capacity-building. To carry out these instructions, increased manpower and financial resources are required. Extra manpower, both at Headquarters and in the field, is necessary to monitor workshop outcomes, maintain a support network for directors between workshops, and ensure long-term continuity of the process.
- 175 Consultation between the IOC Sections and Field Offices has led, in the 2004–2005 biennium, to increased harmonization and alignment of IOC capacity-building activities with the IOC Principles of Capacity-building. Inter-sectoral collaboration with UNESCO programme activities of education, science and internal oversight was also pursued.
- 176 Thanks to a major grant from the Swedish International Development Agency, the Executive Secretary was able to hire a consultant to conduct a suite of workshops in leadership and team-building, as called for by Resolution XXIII-11. IOC also received Italian government funds for capacity-building in countries bordering the Adriatic Sea under a programme that is consistent with the Coastal GOOS Implementation Plan. Extra-budgetary funding was also received from France and the United States of America.
- 177 The Ocean Services/IODE and the Capacity-building Sections of the Secretariat are jointly conducting training workshops for this programme.
- 178 The First Leadership Workshop was held in Maputo, Mozambique, 29 October–1 November 2005, for directors of institutes in the IOCWIO region, and a Second Leadership Workshop for directors in the IOCARIBE region is being prepared, with dates to be chosen by the participants.
- 179 The use of operational products was demonstrated during the First Leadership Workshop in Maputo, with a modelling exercise that used existing regional operational data for model initialization. At the 9th session of the GSSC (UNESCO, Paris, 6–8 March 2006), the IOC's Capacity-building Section presented a proposal for the organization of regional two-week training workshops in remote sensing, GIS, and coastal modelling using available GOOS data and products. Such Decision Support Systems workshops will begin in East Africa in consultation with NEPAD.
- 180 Visits to several marine institutes in the western Indian Ocean and the Caribbean regions provided valuable information and will guide capacity-building interventions in these regions.
- 181 The Consultative Group on Capacity-building was formed by the Executive Secretary based on nominations received from Member States in response to a letter of 2 February 2006 (Ref. IOC/35/PB/ED/sg).
- 182 Ecuador emphasized the important contribution of ODINCARSA to the development of capacity in the region, including in the field of operational oceanography.
- 183 Several Member States emphasized the importance of harmonization and integration of capacity-building activities among the various Sections of the Secretariat, as well as between

Headquarters and the Regional Offices, and several also expressed their satisfaction with the progress achieved in this domain.

- 184 Several Member States stressed the importance of the IOC Criteria and Guidelines on the Transfer of Marine Technology prepared by the Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS), which recently received mention in the United Nations General Assembly, and held that these guidelines should be more fully utilized to enhance IOC capacity-building.
- 185 Japan recalled its support for capacity-building in marine scientific research capability, and stressed the importance of providing opportunities for young scientists to develop their skills.
- 186 India and Mexico expressed their approval of the importance given to the definition of needs and priorities, believing that this task should be determined by the Member States themselves and that the results should be reflected in training and education. India recalled the importance of adequate capacity for developing and using the products of operational oceanography, and assured its full support to the IOC capacity-building efforts and its willingness to share its expertise and to host training courses. India further highlighted the important data management needs that will grow as capacity is developed.
- 187 France expressed its interest in capacity-building and the continuation of its support, particularly by inviting young scientists aboard its research vessels, with a view to allowing them to receive training in marine research. It also supported the proposal to increase Secretariat manpower for capacity-building.
- 188 The Russian Federation emphasized the key role of UNESCO/IOC Chairs in capacity development—part of the UNITWIN network—and recalled the support provided, including for the successful training programmes in the Baltic and Caspian Seas.
- 189 The United States of America expressed its expectation that IOC capacity-building will enhance networking and cooperation among Member States and contribute to the development of GOOS. The United States of America also requested the Secretariat to undertake an assessment of human-resource needs and priorities to allow adequate planning within the next Medium-term Strategy.
- 190 The Republic of Korea expressed its full approval of the principles that Member States should set their own priorities in capacity-building and that capacity-building be embedded in ongoing regional projects.
- 191 Belgium welcomed the attention given to training at the level of science leaders, and expressed its satisfaction with the fact that the Capacity-building Strategy included an awareness-raising component. Belgium will continue its support for capacity-building through IODE and its Project Office in Ostend.
- 192 South Africa expressed the high priority given by its government to capacity-building in marine sciences, and noted the cooperation among Brazil, India and South Africa (IBSA) as a successful example of South–South cooperation.
- 193 Nigeria stated that one of the most important requirements of the nine countries bordering the Guinea Current Large Marine Ecosystem (GCLME) is an increase in opportunities for upgrading the skills of their marine scientists in oceanography, fishery resources, marine geology and geophysics. To this effect, joint ocean cruises involving interested Member States are needed

annually. Such programmes now being facilitated by FAO/UNIDO/GCLME need further encouragement from the IOC Capacity-Building Programme.

194 Portugal offered to examine requests from countries in Africa that use Portuguese as a communication language for textbooks and scientific material, and noted the reference in the information document IOC/INF-1229 to the value of the Marine Science Country Profiles, which were the result of earlier surveys, for guiding capacity-building for a diversity of role players in this field of endeavour, including bilateral donors. Portugal also expressed its support of the items put to the Executive Council for its consideration and decision.

195 The Head of the IOC Capacity-building Section thanked the Member States for their positive comments and guidance on the capacity-building efforts, and particularly those Member States that had offered resources for capacity-building activities. He emphasized that integrating the varied and rich experiences of the different IOC programmes was an on-going process facilitated by the Principles that had been approved earlier by the Assembly. The principle that had been agreed to was to add benefit whilst harnessing the energies of various programme efforts.

196 The Executive Secretary responded to the several queries raised on the use of the Transfer of Marine Technology, in light of Resolution XXIII-9. He agreed in particular with Member States that had stressed the importance of the IOC Criteria and Guidelines on the Transfer of Marine Technology (IOC/INF-1203) for enhancing capacity development, and the special role that the IOC has to play in this respect. He stressed that the main niche of IOC would be in promoting the transfer of soft technologies, such as management and modelling tools, and recalled the many efforts by the Secretariat to promote the “Guidelines”, including the development of a dedicated web site. He acknowledged the limitation due to a lack of resources to further develop these activities, and the importance of linking these efforts with capacity-building. He agreed with the United States of America on the need to carry out a thorough assessment of staffing needs and priorities. The Executive Secretary recalled the lessons learned from the IOC’s experience in capacity-building, and the critical importance of following the Principles approved by the Assembly at its 23rd Session, which allow sustainable benefits from capacity-building.

197 The Executive Council thanked the many Member States that had contributed financially and in kind or in human resources to the Commission’s capacity-building activities.

198 The Executive Council urged Member States to: (i) second experts to the Capacity-building Section of the IOC Secretariat, both at headquarters and in the field; (ii) contribute financially, if necessary targeting regions, to the organization of Decision Support Systems workshops; and (iii) designate a single-point capacity-building contact person to pursue actively the creation of an effective assessment product for use by all stakeholders concerned with capacity-building.

199 The Executive Council invited the Director-General of UNESCO to consider with high priority the establishment of one professional and one administrative post in the IOC Secretariat, in the Capacity-building Section, to ensure continuity of critical capacity-building initiatives.

200 **The Executive Council adopted Resolution EC-XXXIX.3.**

201 On behalf of the Executive Board of the International Ocean Institute, the Executive Director of IOI, Dr Iouri Oliounine, presented the Elizabeth Mann Borgese Medal to the IOC

"In gratitude for its continued support and encouragement extended to IOI in realizing its vision and mission, and in recognition and appreciation by the IOI community of the IOC leadership in promoting equitable global co-operation for advancing and understanding and knowledge of the nature, resources and sustainability of the oceans."

202 The Executive Secretary presented an IOC Certificate of Appreciation to Alexei Suzyumov for his long-standing and dedicated steering of the IOC "Training-through-Research" Programme for developing capacity in research at sea.

203 Alexei Suzyumov has been continuously involved in the IOC Floating University programme since its inception. In two weeks' time the programme will be completing its 16th annual cycle of activities when the RV *Professor Logachev* docks in Norway. Without Alexei's hard work in providing the necessary administrative support, this achievement would have been impossible. Besides being deeply involved in the annual major scientific research and teaching cruise, he has been involved in each of the 15 international scientific meetings, all of the committee meetings and the publication of the 14 reports in the IOC Technical Series. He has freely given us the benefit of his wisdom and conscientious approach to organization. Much has been done in his own time and has been truly "beyond the call of duty". The 700 or so students and scientists who have been involved recognize that they owe Alexei Suzyumov a great deal and the IOC very much hopes that he will continue to give his wise counsel and support.

204 The Executive Secretary, on behalf of the Commission, in plenary, thanked Ms Françoise Ricotou for her longstanding service to the IOC; she will leave the Organization at the end of August this year.

205 Françoise Ricotou was born in Madagascar and has been working in the UN system for 31 years, first for FAO, Rome, as well as in Beirut, then for 26 years in UNESCO, including 21 years in the IOC where she first worked for the GLOSS and GOOS programmes and then joined the Ocean Services Section in 1993. She assisted Iouri Oliounine as well as Peter Pissierssens (with IODE, ODINAFRICA, ITSU, GLODIR and the *WINDOW Newsletter*) until December 2005. Françoise is now working in the Tsunami Unit.

4.5 REGIONAL ACTIVITIES

4.5.1 Follow-up to the Fourth Session of the IOC Regional Committee for the Central Indian Ocean (IOCINDIO)

206 The Chairman of IOCINDIO, Dr Nasser Zaker, introduced this item. The IOC Regional Committee for the Central Indian Ocean held its 4th Session in Colombo, Sri Lanka, 8–10 December 2005. Dr Zaker reported on the implementation of the IOCINDIO Work Plan for the period 2000–2005, noting the considerable achievements, mainly in the area of capacity-building in ocean research, services and observation. He highlighted the organization of seven training courses, in the areas of HAB, ICAM, GLOSS, coral reefs, IOGOOS and data management. Other important regional programmes, such as ODINCINDIO, were initiated through IODE and with the support of the Government of Flanders. ODINCINDIO was also identified as a capacity-building component of IOGOOS for ocean data and information management. The IOC–ROPME Workshop on Coral Reef Management (Kish Island, Islamic Republic of Iran, 14–17 December 2003) led to the establishment of a regional GCRMN node for the Persian Gulf. The IOCINDIO Chairman recalled that the Iranian National Centre for Oceanography (INCO) has provided administrative support to IOCINDIO activities and has established a dedicated web site for the Regional Committee. He also welcomed the increased level of collaboration with

other international and regional bodies and programmes, such as ROPME, IOI, LOICZ and IOGOOS.

207 Dr Zaker briefly presented the main decisions of the 4th Session of IOCINDIO, as well as the two recommendations adopted, which include a regional Work Plan for the period 2006–2008 and recommendations for enhancing the effectiveness of IOCINDIO in the context of the present IOC regional policy. He recognized that, since the proposed IOCINDIO Work Plan exceeds by far the level of resources available for IOC regional activities, the mobilization of adequate resources through in-kind and extra-budgetary financial contributions from Member States is critically needed.

208 The Executive Council thanked the IOCINDIO Chairman for his comprehensive report and welcomed the work achieved by IOCINDIO during the inter-sessional period.

209 Some Member States emphasized the importance of building regional capacity in the area of ICAM and operational observations, and the development of near-shore bathymetry for use in the preparation of coastal inundation maps in relation to the mitigation of the impact of oceanic hazards.

210 The Representative of IHO reconfirmed the readiness of his organization to fully collaborate with IOC in the development of inundation maps and related coastal bathymetric activities required for the region.

211 **The Executive Council endorsed** the Report of the 4th Session of the IOC Regional Committee for the Central Indian Ocean and its Recommendations, and expressed its appreciation to Sri Lanka for having hosted IOCINDIO-IV.

212 **The Executive Council adopted** Resolution EC-XXXIX.4.

4.5.2 Follow-up to the Ninth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE)

213 The Chairman of the IOCARIBE Sub-Commission, Mr Guillermo Garcia (Cuba), introduced this item. The Executive Summary of the 9th Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (Cartagena, Colombia, 19–22 April 2006) is contained in Executive Summary Report IOC/SC-IOCARIBE-IX/3s.

214 The Chairman of IOCARIBE briefly reviewed the main results of the 9th Session of IOCARIBE, among them: (i) the development of the “White Water to Blue Water Initiative” and the Caribbean Region; (ii) the review of the IOCARIBE-GOOS Action Plan for Regional GOOS Development and its links to the Caribbean Large Marine Ecosystem and to the CARIBE-EWS; (iii) the development of the regional Large Marine Ecosystem (LME) projects; (iv) the implementation of the Ocean Data and Information Network for the Caribbean and South America (ODINCARSA); (v) the strengthening of the project on Integrated Coastal Management in Latin America and the Caribbean; and (vi) the conduct of regional assessments of existing capacities to undertake marine scientific research and operational oceanography.

215 The Chairman of IOCARIBE also discussed the main achievements during this inter-sessional period, particularly: (i) the approval by GEF of the Caribbean Large Marine Ecosystem Project, PDF-B phase, “Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions”; this is an 18-month project, with the participation of 25 GEF-eligible countries, starting in June 2006, with IOC as

the implementing agency, and UNDP, the executive agency, with the project office in CERMES, at the University of the West Indies, in Barbados; (ii) the approval and publication of the IOCARIBE Strategic Science Plan and Related Services for 2006–2016; (iii) the advances in the implementation of the “Know-Why Network,” a joint IOCARIBE and UNEP CAR/CU project, with the support of the Swedish International Development Agency; and (iv) the initial phase for the establishment of the “Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions.”

216 The following items were approved by the Sub-Commission at its 9th Session: (i) the IOCARIBE Strategic Science Plan and Related Services for 2006–2016; (ii) a Memorandum of Understanding between IOCARIBE and the Centre for Resource Management and Environmental Studies (CERMES) of the University of the West Indies, Barbados, on the establishment of the Caribbean Large Marine Ecosystem (CLME) PDF-B Project Office at CERMES, Barbados; (iii) an Action Plan for the establishment of the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions; and (iv) its Draft Biennial Programme and Budget for 2006–2008.

217 Of particular importance were the advances by IOCARIBE in enhancing and strengthening links with other United Nations and regional programmes and organizations. The IOCARIBE Chairman informed the Executive Council of the Memoranda of Understanding (MoU) and the cooperation developed with: (i) the Caribbean Disaster Emergency Response Agency (CDERA) of CARICOM; (ii) the Caribbean Regional Fisheries Mechanism (CRFM). He also pointed out the fruitful cooperation with WMO, UNEP and ISDR, and the need to strengthen the links with the International Maritime Organization and its Marine Environment Protection Committee (MEPC).

218 Mexico expressed its satisfaction with the work done in the region during the inter-sessional period and manifested its interest in continuing its support for the IOCARIBE programmes and projects.

219 Brazil stressed the importance of the “IOCARIBE Strategic Science Plan and Related Services for 2006–2016” and pointed out the challenges that the region is facing to implement it. Brazil also commended Colombia for its support and hosting of the IOCARIBE Secretariat during the last twenty years.

220 Ecuador pointed out the experience of recent years in strengthening the cooperation between regions, and particularly recalled the joint activities developed between IOCARIBE and the Permanent Commission for the Southeast Pacific.

221 Nigeria also stressed the need for strengthening South–South cooperation in capacity-building, particularly for implementing LME projects.

222 Venezuela said it would make available to the Member States of the Caribbean and Adjacent Regions information from its state-of-the-art sea level and seismological networks. Venezuela also informed the Executive Council of the support that the Venezuelan National Commission for Risk Management has given to the countries of the Caribbean and the Andean region in various recovery processes following flooding and other dangerous coastal zone events. Venezuela stressed the need for countries to develop an appropriate legal framework for the work and cooperation relating to warning systems, and underlined the importance of a shared financing of activities and programmes by UNESCO, the IOC Member States and international, regional and national organizations. Venezuela also stressed the usefulness of Member States

creating their respective Commissions or Working Groups for each of the various programme and activities of the IOC.

- 223 Colombia reaffirmed its government's intention to continue supporting the IOCARIBE Secretariat in Cartagena. Also, the Colombian Government is reviewing the Caribbean Large Marine Ecosystem Project with the view to endorsing it and actively participating in its implementation.
- 224 The Representative of the WMO, Mr Edgard Cabrera, highlighted the role of IOCARIBE and pointed out the importance of its coordination in the region and the good cooperation achieved with the NMHSs in the framework of the Intergovernmental Coordination Group for the Caribbean Sea and Adjacent Regions (ICG/CARIBE-EWS). He stressed the long history of WMO activities beyond the strict domain of weather, climate and water. These activities have reached far beyond natural disasters. Safety at sea has been a primary driver for internationally coordinated marine observations since the foundation of WMO. Over the past decades the demand has steadily grown for expanding marine observation systems to support other applications, such as long-range weather forecasting, coastal-area management, fishing, pollution prevention, climate modelling and prediction. In this sense, a close cooperation in the region with JCOMM in support of the ICG/CARIBE-EWS is especially important.
- 225 The Representative of UNEP, Mr Nelson Andrade, pointed out the on-going project developed within the framework of the Memorandum of Co-operation between IOCARIBE and UNEP, signed during the 7th Session of IOCARIBE, in Veracruz, Mexico, in February 2002. IOCARIBE and UNEP CAR/CU established the Regional Network in Marine Science and Technology for the Caribbean: The "Know-why Network." This is a partnership within the White Water to Blue Water Initiative, with support from the Swedish International Development Agency. Institutions from Colombia (Invemar), Cuba (Cimab-RAC), Trinidad and Tobago (IMA) and Venezuela (Universidad de Oriente) are participating in the project. The overall objective of the project is to enhance the capacity of the countries of the Wider Caribbean Region to implement the Protocol concerning Land-based Sources of Pollution (LBS Protocol) and to improve knowledge of the status and quality of the marine environment and its resources.
- 226 The Representative of IHO, Mr Hugo Gorziglia, recalled the 59th UN General Assembly's call, in 2004, to the International Hydrographic Organization to intensify its efforts to build capacity in developing countries, in particular the least-developed countries and Small Island Developing States, to improve hydrographic services and the production of nautical charts, including the mobilization of resources and building of capacity. With this in mind, the IHO's Meso-American and Caribbean Hydrographic Commission agreed, and decided as a follow-up action, to visit the Small Island States in the Caribbean region in 2006, to work with national authorities to determine the optimum, but most economical, means of ensuring the updating and provision of modern surveys and charts.
- 227 The Executive Council expressed its appreciation of the excellent work being done by IOCARIBE. It congratulated Mr Guillermo Garcia on his recent election as IOCARIBE Chairman and commended past IOCARIBE Chairman, Mr Marco-Polo Bernal (Mexico), and the IOCARIBE Secretary, Mr Cesar Toro, for their achievements during the last inter-sessional period.
- 228 The Executive Council also expressed its recognition to IOCARIBE for providing a successful model of work for an IOC regional subsidiary body in the new financial context.

229 The Executive Council thanked the Government of Colombia for hosting the 9th Session of IOCARIBE in Cartagena, and for having hosted and supported the IOCARIBE Secretariat during the last twenty years.

230 **The Executive Council endorsed** the Executive Summary of the report of IOCARIBE-IX and **adopted** Resolution EC-XXXIX.5.

4.5.3 Follow-up to the Sixth Session of the IOC Regional Committee for the Western Indian Ocean (IOCWIO)

231 The Chairman of IOCWIO, Dr Antonio Hogueane, introduced this item. The IOC Regional Committee for the Western Indian Ocean, at its 6th Session (Maputo, Mozambique, 2–4 November 2005), recognized that the extra-budgetary funds made available under the Flanders UNESCO Science Trust Fund (FUST) had enabled the implementation of a wide range of activities in the context of the Ocean Data and Information Network for Africa (ODINAFRICA). The Regional Committee adopted its Work Plan for 2006–2008, focusing on the development of a coastal observing system and of the skills required to address the needs of integrated management of the coastal environment and resources, as well as the development of systems of early warning of marine hazards, such as storm surges, cyclones and tsunamis, and mitigation of their impact. The Committee agreed that this initiative calls for the installation and upgrading of sea-level stations, and the strengthening of skills in modelling, remote sensing, GIS, and mapping of coastal areas. It recognized the roles that the Indian Ocean Tsunami Early Warning and Mitigation System and the Ocean Data and Information Network for Africa (ODINAFRICA) could usefully play in the implementation of this programme. The Regional Committee emphasized the fact that the work programme required more resources than were currently available; it therefore attached great importance to the planned workshops on proposal-writing for the mobilization of resources, as well as to the need for continued collaboration with other organizations in the region, such as the United Nations Environment Programme, the Secretariat for the NEPAD Coastal and Marine Sub-theme, and the Western Indian Ocean Marine Science Association (WIOMSA).

232 Dr Hogueane emphasized the importance of the establishment of the Regional Group of Experts on Ocean Dynamics and Climate to stimulate oceanographic research through the participation of western Indian Ocean countries in global programmes. Resources will be required for at least one meeting of this Group during the inter-sessional period.

233 South Africa informed the Executive Council that it is considering making an oceanographic research vessel available to regional programmes, in line with the Benguela Current LME and the Agulhas-Somali LME. At this time, South Africa is also discussing the design, development and deployment of moored real-time-data buoys and drifting buoys along the east and west coasts of southern Africa. A decision on this will be announced during the GOOS-related Workshops hosted by GOOS-Africa in November 2006 in Cape Town, South Africa:

- Pan-African LMEs/GOOS-AFRICA Leadership Workshop on Operational Oceanography and Remote Sensing in Africa, Cape Town, South Africa, 6–10 November 2006;
- The Second Pan-African LMEs Forum, Cape Town, South Africa, 13 November 2006;
- The Third Forum of the GOOS Regional Alliances (GRAs), Cape Town, South Africa, 14–17 November 2006.

- 234 The Representative of the IHO informed the Executive Council of the capacity-building activities of his organization in the region. A mission to assess available facilities had been undertaken to Kenya, Madagascar, Malawi, Mozambique, Namibia, Seychelles, Tanzania and Uganda. A technical workshop was held (Maputo, Mozambique, 7–8 June 2006) to identify national and regional needs. The results of this workshop will orient the IHO capacity-building efforts. He informed the Executive Council that IHO encourages the establishment of National Hydrographic Commissions.
- 235 The Executive Council congratulated the Chairman of IOCWIO on his re-election and noted the progress that has been made in the development and implementation of programmes in IOCWIO region.
- 236 The Executive Council welcomed the very important and substantive offer of South Africa to make an oceanographic research vessel available for use by institutions in the region for a period of up to six months, and the deployment of moored and drifting buoys, and expressed its appreciation of the generous offer.
- 237 The Executive Council reaffirmed its support for the strengthening of capacity-building initiatives in the region, especially the planned leadership and proposal-writing workshops.
- 238 **The Executive Council endorsed** the Executive Summary report of IOCWIO-VI and its four recommendations and urged Member States to provide extra resources for the full implementation of the approved Work Plan.
- 239 **The Executive Council adopted** Resolution EC-XXXIX.6.

4.5.4 Follow-up to the Report of the Inter-sessional Working Group on Regional Programmes

- 240 IOC Vice-Chairman, Professor Mario Ruivo, introduced this item. By Resolution XXIII-6, the Assembly recognized that the role of Regional Subsidiary Bodies must be made more effective and efficient by examining and correcting the present deficiencies, improving communications and interactions and ensuring a comprehensive programme following the Commission's Main Lines of Action. The Resolution, *inter alia*, also instructed the Executive Secretary to create an Inter-sessional Working Group, composed of the Chairpersons of Regional Subsidiary Bodies and involving all interested Member States, to: (i) assess the efficiency and effectiveness of regional programmes through quantifiable indicators; (ii) assess the role of regional activities in the long-term plans of the Commission and develop scenarios of resource needs; and (iii) report to the Executive Council, at its 39th Session, on progress achieved.
- 241 Pursuant to Resolution XXIII-6, an Inter-sessional Working Group was created in April 2006 by the Executive Secretary, under the chairmanship of IOC Vice-Chairman Professor Mario Ruivo. The Group carried out a preliminary consultation among the Chairpersons of Regional Subsidiary Bodies on its modalities of work. Further, the Meeting of IOC Major Subsidiary Bodies (Paris, UNESCO, 20 June 2006) examined the preliminary work of the Working Group and considered background information and proposals for its continuation. Before the meeting, Australia, Cuba, Finland, Portugal, Sri Lanka and the United States of America had expressed their interest in participating in the Working Group.
- 242 Several Member States noted that the Regional Subsidiary Bodies are a fundamental arm of the IOC to translate the global programmes and ocean services of the Commission into

activities for the benefit of Member States, taking into account the specificity of each region, from all points of view, and the priorities indicated by Member States.

243 The Working Group recognized that this requires increased national and regional capacities in marine sciences through training, networking among scientists and research and higher-education institutions, and the mobilization of specialized human resources and means, complemented by bilateral and multilateral support. A special effort to develop, at all levels, public awareness of the importance of scientific knowledge and data for ocean management is essential to sensitize decision-makers and all interested stakeholders. However, this effort occurs under two specific constraints: (i) the current insufficiency of IOC budget and the limited human and financial resources available to Regional Subsidiary Bodies to implement and sustain projects; and (ii) the limited degree of awareness of IOC activities outside the concerned scientific communities, which undermines the mobilization of extra-budgetary resources in support of regional cooperation in marine research and services. This raises fundamental questions about the visibility of IOC activities and the effectiveness of national focal points in gaining the interest of national policy-makers and stakeholders. By itself, the existence and effective functioning of formal national bodies for oceanography and related issues represents an important indicator of interest in the role and activities of the Commission.

244 The Group recognized that new priorities for ocean management are emerging, in particular, the application of the ecosystem approach called for by the Plan of Implementation for the World Summit on Sustainable Development and, more recently, the attention given to the conservation of biodiversity in the high seas and in the deep sea. This raises a question about the coherence between the approach to, and implementation of, IOC global programmes with a regional delivery and IOC Regional Subsidiary Bodies with such global priorities for effective ocean science and services. Important opportunities are emerging for raising the profile of oceans in the political agenda at national and international levels in the near future: in 2008, the 10th anniversary of the International Year of the Ocean; in 2010, the 50th anniversary of the IOC; in 2014, the overall review of progress on oceans and coasts by the Commission on Sustainable Development. These global events provide an occasion for the IOC to enhance its regional approaches.

245 Some Member States agreed that the Working Group, with the participation of the Chairmen of the Regional Subsidiary Bodies, with inputs from Technical Bodies and open to interested Member States, can provide an effective contribution to:

- (i) a stocktaking and an assessment of the efficiency, effectiveness and potentialities of IOC Regional Subsidiary Bodies and activities, based on measures of performance that, while flexible enough to accommodate regional differences, allow for the measurement of progress based on common metrics;
- (ii) an analysis of the cooperation with intergovernmental organizations, in particular UNEP and UNDP, and strategic alliances with non-governmental organizations active in the same regions;
- (iii) the process that will lead to the formulation of the IOC Medium-term Strategy for 2008–2013, to be adopted by the Assembly at its 24th Session, in 2007, as a contribution to the UNESCO 33 C/4, which is expected to be finally adopted by the UNESCO General Conference in the autumn of 2007;

- (iv) an objective basis for guidance by the Assembly regarding an enhanced role of the Regional Subsidiary Bodies in the implementation of IOC programmes of work and on the budgetary, staffing and other requirements.

246 Australia, Cuba, Kenya, Nigeria, Republic of Korea, Sri Lanka and Venezuela expressed their appreciation of the preliminary work carried out by the Vice-Chairman responsible for regional activities.

247 The Chairman of WESTPAC considered that it is strongly felt by the Regional Subsidiary Bodies, and particularly WESTPAC, that a minimum funding to cover basic manpower and programme implementation for the Regional Subsidiary Bodies would have to be incorporated into the IOC Regular Programme and Budget to ensure the efficient functioning of these Bodies.

248 **The Executive Council decided** that the activities of the Working Group during the inter-sessional period should be continued with the support of the IOC Secretariat. A broad and regionally balanced participation of Members States is an essential element to the success of the Working Group and the Executive Council urged Member States to participate actively in its work. It requested the Working Group to make its final report available to the Member States sufficiently in advance of the 24th Session of the Assembly to enable them to examine it properly.

249 **The Executive Council also decided** to extend the Working Group's mandate until the 24th Session of the Assembly, to allow it to complete its work, organize an information session immediately prior to the 24th Session of the Assembly, and to report to the Assembly at that session.

4.6 UNITED NATIONS CONVENTIONS AND AGREEMENTS

4.6.1 Follow-up to the Sixth Session of the IOC Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS VI)

250 The Chairman of the IOC Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS), Elie Jarmache, introduced this item. He thanked the Government of Spain and the Junta de Andalucía (Spanish Regional Government) for hosting the 6th meeting of IOC/ABE-LOS (Málaga, Spain, 3–7 April 2006), and France, Greece, Spain and The Netherlands for supporting the attendance of representatives from developing countries.

251 At IOC/ABE-LOS-VI, the following topics were addressed:

- (i) The IOC legal framework for the collection of oceanographic data in the context of UNCLOS;
- (ii) Emerging issues on the Law of the Sea in relation to marine scientific research in the main international fora; IOC/ABE-LOS pointed out that IOC needs to be alert and involved in any UN matter of interest to IOC Member States that might require the participation of IOC/ABE-LOS;
- (iii) The dissemination and promotion of the IOC Criteria and Guidelines on the Transfer of Marine Technology (CGTMT), in accordance with IOC Resolutions EC-XXXVII.8 and XXIII-9, and UNGA Resolutions A/RES/59/24 (para. 11) and A/RES/60/30 (para. 14) in

which IOC was requested to work closely with Member States in the application of these Criteria and Guidelines;

- (iv) The establishment of a Roster of Experts on Marine Scientific Research and Transfer of Marine Technology;
- (v) The new IOC/ABE-LOS web site, which is considered as a useful tool for IOC Member States to get information on UNCLOS, particularly Part XIII and XIV.

252 He commended the Secretariat on its initiative to provide a report on the inter-sessional activities, which had helped the Advisory Body to follow up the work undertaken by the Secretariat.

253 He noted the good participation in the meeting (42 countries), as well as that of Dr François Gérard, Chairman of I-GOOS, and Mathieu Belbéoch, Argo Project Coordinator, who delivered very informative presentations. He considered that IOC/ABE-LOS is progressively consolidating its achievements.

254 He reminded the Executive Council that the Advisory Body had decided that the Sub-Group working on the legal framework for the collection of oceanographic data in the context of UNCLOS, coordinated by Professor Kari Hakapää, should continue its work, based on the comments and observations made when the subject matter of the Sub-Group was discussed at IOC/ABE-LOS V and VI, calling for increased participation of the members of the Sub-Group in the inter-sessional work.

255 He explained that the Advisory Body does not intend to provide binding instruments but practical solutions to problems that have emerged in IOC programmes and activities.

256 Gabon affirmed its support to IOC/ABE-LOS and extended an invitation to hold the 7th meeting of IOC/ABE-LOS, which could be expected to be of particular benefit to the African Member States.

257 The Executive Council accepted with appreciation the offer of Gabon.

258 Several Member States commended the work of IOC/ABE-LOS, its Chairman and the IOC Secretariat.

259 Spain and Greece confirmed their support to IOC/ABE-LOS activities in the coming inter-sessional period.

260 Australia supported the work of IOC/ABE-LOS and informed the Executive Council of the Partnership established under the Criteria and Guidelines on the Transfer of Marine Technology by the ICG/IOTWS to deal with deep-sea pressure-sensor technology, as a clear example of the use of this IOC instrument.

261 The Congo expressed its full support for the activities of IOC/ABE-LOS and for the invitation of Gabon to host the next IOC/ABE-LOS meeting (2007), in Libreville.

262 The United Kingdom expressed its pleasure at the completion of some of the tasks given to IOC/ABE-LOS, but noted that progress during the IOC/ABE-LOS VI meeting had been slow. It recognized that the issues for consideration were complex and would need further work. Nevertheless, it was of the view that a more streamlined approach should be considered and suggested that IOC/ABE-LOS should bring proposals on this matter to the Assembly at its 24th

Session. The United Kingdom also took the view that the routine collection of data by Argo floats should not be considered as marine scientific research but rather as an operational activity that should be treated in a similar way to meteorological activities.

263 Japan and Argentina disagreed with this view. They considered that IOC/ABE-LOS had achieved concrete and satisfactory results through its four Working Groups. They also believed that, given its characteristics, the Argo initiative could perfectly well be considered in the framework of Art. 247 of UNCLOS, as an activity of a group of IOC Member States on a subject of marine scientific research under the auspices of IOC. They considered also that the Argo floats are tools of marine scientific research and that the data collected by them are moreover of benefit to marine meteorology.

264 Argentina highlighted the fact that IOC/ABE-LOS had shown itself capable of producing specific results and products, both quantitatively and qualitatively. Argentina stressed the need to ensure an adequate follow-up of these products by the Member States and the Executive Secretary; and similarly, for the criteria and principles for the transfer of marine technology as an appropriate tool for capacity-building, and the application of which, lay both with the Member States and the Executive Secretary. Argentina called on the Member States to respond to Questionnaire N° 3 on the practice of States; the replies received show that certain current ideas about marine scientific research are incorrect, as, for example, the suppose difficulty in obtaining the authorization of the coastal States. With respect to the Roster of Experts, Argentina considered that countries had had the possibility make their observations and comments on the constitution and mandate of the Roster and that it should now be implemented by the Secretariat and the Member States. Regarding the juridical framework for the gathering of oceanographic data, Argentina considered that the discussion had been productive, and called for the continuation and intensification of the work inter-sessionally, as had been done hitherto. Argentina suggested caution regarding the possibility that IOC/ABE-LOS concern itself with biodiversity in areas outside national jurisdiction, since this should require a clear instruction from the UN General Assembly or from the conferences of the States Parties to UNCLOS.

265 Japan expressed its concern that implementation of survey cruises in the EEZs of coastal States is hard to achieve, owing to difficulties in obtaining their consent to conduct cruises in a timely fashion and, sometimes, owing to the severe conditions attached to such consent. It suggested that this issue could be a possible topic for examination by IOC/ABE-LOS.

266 Several Member States agreed that the issue of the legal framework for the collection of oceanographic data was a delicate and difficult topic, and that there was a need to work actively in the implementation of marine technology transfer.

267 Several Member States said they would be submitting names for the Roster of Experts. United Kingdom sought clarification over terms of reference and expertise required for these experts.

268 The United States of America expressed the view that, in order to facilitate exchange of Member State practice regarding Part XIII and XIV of UNCLOS, Member States were reminded to respond to IOC Questionnaire N° 3, which is available on the IOC/ABE-LOS web site.

269 The Chairman of I-GOOS pointed out that IOC programmes and activities need to be undertaken within an appropriate legal framework and stated that the development of observing systems demanded the transfer of technology to ensure their success.

270 Regarding the future activities of the IOC/ABE-LOS, the Executive Secretary reminded the Executive Council that, according to IOC Resolution XIX-19, the matters to be dealt with by IOC/ABE-LOS are referred to it by the IOC Governing Bodies or the IOC Executive Secretary. He highlighted the fact that the IOC does not interpret UNCLOS, but that, through IOC/ABE-LOS, contributes to the implementation of the Parts of UNCLOS relevant to its fields of competence. The Executive Secretary added that there is a wide range of modalities of technology transfer, going from the soft technologies, associated with the collection and interpretation of scientific data, which may conveniently come under the IOC Capacity-building Programme, and, on the other hand, commercial or proprietary technologies which are mostly transferred through well established market mechanisms, in which IOC, as an international public-service organization, has a very limited and indirect role to play.

271 Several Member States identified additional emerging issues on which IOC/ABE-LOS could undertake work within IOC's area of competence; e.g. biodiversity in waters beyond national jurisdiction. Several Member States agreed that the issue of the legal framework for the collection of oceanographic data was a delicate and difficult topic, and that there was a need to work actively in the implementation of marine technology transfer.

272 **The Executive Council adopted Resolution EC-XXXIX.7.**

273 Venezuela, while supporting Resolution EC-XXXIX.7, reminded the Executive Council that Venezuela is not a Party to UNCLOS.

4.7 TSUNAMI ACTIVITIES

4.7.1 Follow-up to the First and Second Sessions of the IOC Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS)

274 The Chairman of the ICG/IOTWS, Dr P.S. Goel, introduced this item. He recalled that, by Resolution XXIII-12, the IOC Assembly decided: (i) to create an Indian Ocean Tsunami Warning and Mitigation System (IOTWS) and establish an Intergovernmental Coordination Group (ICG/IOTWS); (ii) that the IOC shall provide the Secretariat of the ICG/IOTWS; (iii) that the IOC shall develop a comprehensive programme of capacity-building on tsunami protection for the Indian Ocean, in order to assist all countries of the region, including the coastal African countries and Middle-Eastern countries, to develop the capacity to protect their populations against the impact of tsunamis. The Assembly also stressed the fact that a regional system should be integrated into a network of global warning systems for ocean-related hazards.

275 The ICG/IOTWS, at its 1st Session (Perth, Australia, 3–5 August 2005), established four inter-sessional Working Groups, on: Seismic Measurements; Sea-level Data; Risk Assessment, Modelling and Forecasting; and Interoperability. At its 2nd Session (Hyderabad, 14–16 December 2005), it split the tasks among five inter-sessional Working Groups (Seismic Measurements; Sea-level Data; Risk Assessment; Modelling and Forecasting; and Interoperability). The ICG also stressed the need to address the promotion of, and technical support for, public-awareness and preparedness activities at the regional and national levels, and called on the IOC Executive Secretary to take appropriate action in the inter-sessional period. Since this need had also been addressed by the ISDR, the ISDR Secretariat, in close cooperation with the IOC Secretariat, volunteered to conduct a coordination workshop, which took place in Bangkok, 14–16 June 2006, with a view also to involving, in the work of the ICG/IOTWS, representatives of IOC Member States, relevant NGOs and other UN agencies active in capacity-building. A list of ICG/IOTWS recommendations on the implementation of an Indian Ocean

Tsunami Warning and Mitigation System was made available to the Executive Council (Summary Report ICG/IOTWS-II/3), and a detailed Action Plan is currently being prepared by the IOC Secretariat.

- 276 Dr Goel reminded the Executive Council of the two major tsunami source zones in the Indian Ocean Basin, the Makran region, off the coast of Pakistan, and the Sunda–Sumatra Trench, and reported in detail on the plans to establish an Indian Tsunami Warning System. He also outlined the actual state of upgrading and further plans to complete the national systems for Australia, Indonesia, Malaysia and Thailand. He presented the follow-up actions to finalize an end-to-end tsunami warning system and reminded the Executive Council that the next session of the ICG/IOTWS will take place in Bali, Indonesia, 31 July–2 August 2006.
- 277 The Executive Secretary thanked Dr Goel for the detailed report and stressed that he was proud that IOC was able to coordinate the work necessary to provide the promised initial system by mid-2006, which includes the installation of 28 additional sea level stations, 30 seismic stations and three open-ocean DART buoys. The Pacific Tsunami Warning Centre in Hawaii and the North-west Pacific Tsunami Warning and Advisory Centre in Tokyo are providing interim advisory information based on these new networks.
- 278 Indonesia appreciated the overview given by Dr Goel and provided additional information on the actual state of the Indonesian tsunami warning system, which has to face very specific requirements, owing to the proximity of Indonesia to the Sumatra Trench. He reported on a two-day national exhibition to mark the first anniversary of the Indian Ocean tsunami disaster of 26 December 2004 and thanked IOC for the coordination and support provided.
- 279 Malaysia reported on two recently hosted tsunami-related meetings, a Round-Table on Earthquake and Tsunami Risk in South East Asia, the South China Sea and Indian Ocean (Kuala Lumpur, Malaysia, 27–28 April 2006), and the UNESCO–IOC International Training Course on Tsunami Numerical Modelling: Course I: Tsunami Sources and Tsunami Propagation (Kuala Lumpur, Malaysia, 8–19 May 2006).
- 280 Thailand emphasized the need to take into account related environmental and capacity-building activities.
- 281 Sri Lanka reported on its progress in establishing a national TWS.
- 282 Venezuela pointed out that there is an urgent need to take the social aspects into account.
- 283 Japan informed the Executive Council of an international post-tsunami geophysical cruise to Indonesia to assess the huge geotectonic plate movement that generated the earthquake and the subsequent Indian Ocean tsunami disaster; the Japanese report was made available to the participants in the present session of the Executive Council.
- 284 The United States of America expressed its appreciation of the progress made by the ICG and the IOC Secretariat, emphasizing the need to accelerate efforts to complete the regional operational design and encourage ongoing commitments to the free and open exchange of relevant real-time ocean-hazard warning data without thresholds.
- 285 Kuwait asked whether there was an intention to use crystal sensors for measuring deep-sea pressure changes.

- 286 Mexico was pleased to see the substantial progress in the establishment of an IOTWS, emphasizing that technology transfer, especially on data transmission and communication means, needs to be increased.
- 287 Kenya appreciated the efforts by the IOC and its Member States to establish an IOTWS, but emphasized the importance of capacity-building and training in an end-to-end warning system.
- 288 France appreciated the significant progress and announced its plan to help eastern African countries to establish national warning centres on a multi-hazard basis. France also recommended that tests of the system, such as those performed in the Pacific, be carried out as soon as possible.
- 289 Canada reported on its support for the UNESCO/IOC tsunami information centre in Jakarta and reminded the Executive Council of Canada's willingness to establish bilateral cooperation in the national implementation of end-to-end warning and mitigation systems.
- 290 Germany announced that the German-Indonesian bilateral project to establish an Indonesian Early Tsunami Warning and Mitigation System is scheduled to have a final system in place by the end of 2008, but a preliminary system is planned to be operational by the end of this year.
- 291 The Republic of Korea emphasized the need for the production of inundation maps for all endangered coastal regions around the globe.
- 292 Based on the interventions by France and Kenya, Australia proposed that the 4th Session of ICG/IOTWS be held in the western part of the Indian Ocean.
- 293 IMO expressed its appreciation of the good and continuing cooperation with IOC. UNEP emphasized the necessary link to its Regional Seas Programme and taking environmental impact analysis into account. IOI stressed that it is looking forward to further cooperation with IOC in such fields as capacity-building, training and preparedness.
- 294 The Chairman of the ICG/IOTWS appreciated the positive feedback by the Member States and pointed out that India, although not mentioned before, is actually implementing a public outreach programme on tsunami preparedness.
- 295 The Executive Secretary thanked the Executive Council for the positive feedback on the work of the Secretariat. In a reply to a question raised by Australia about progress on the Secretariat for the IOTWS, he pointed out that, when adopting Resolution XXIII-12, the Assembly had exceeded its authority by deciding on the location of part of the Secretariat, a prerogative that, according to the UNESCO Constitution, is bestowed only on the Director-General of UNESCO and should not be decided by intergovernmental bodies. He also stressed the fact that this was exclusively a procedural matter, but in need of clarification, since it does not constitute a precedent nor has it adversely affected the successful hiring of two professionals for the IOC Perth Regional Office: Mr Tony Elliot, who will take up his post on 1 July 2006; and Ms Jane Cunneen, who has been working in the Perth Office since December 2005.
- 296 **The Executive Council** expressed its appreciation to Australia and India for hosting ICG/IOTWS-I and ICG/IOTWS-II and **endorsed** the reports of these meetings.

4.7.2 Follow-up to the First and Second Sessions of the IOC Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS)

- 297 The Chairman of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS), Professor Stefano Tinti, introduced this item. The Assembly established the ICG/NEAMTWS by Resolution XXIII-14. It also instructed the IOC Executive Secretary to initiate consultations with the European Commission on cooperation and mobilization of support for the ICG/NEAMTWS.
- 298 Resolution XXIII-14 underlined the lack of a regional tsunami early-warning system for the north-eastern Atlantic, the Mediterranean and connected seas, and stressed the fact that the effect of a large tsunami in this region would be more disastrous than usual, given the huge increase in the development, the dense population and the intensive economic use of the coastal zone in modern times. The Resolution also noted that a project for building up a European monitoring and alert system on tsunamis covering the European waters in the Atlantic, Mediterranean and connected seas is under consideration by the European Commission.
- 299 The ICG/NEAMTWS, at its 1st Session (Rome, 21–22 November 2005), defined the scope of work of four inter-sessional working groups on: (i) Hazard Assessment, Risk and Modelling; (ii) Seismic and Geophysical Measurements; (iii) Sea-level Measurements; and (iv) Advisory, Mitigation and Public Awareness. It also defined an initial series of national focal points to receive tsunami warnings. The ICG decided the implementation of trials for key components of the early warning system, with the aim of having an initial operational system in place by December 2007. As milestones for its work, the ICG also decided to formulate a full plan of action by December 2006. A summary of the status of nominations to the network of official focal points for the ICG/NEAMTWS was made available to the Executive Council in the Summary Report of the ICG's 1st Session (ICG/NEAMTWS-I/3).
- 300 The Chairman of the ICG/NEAMTWS also reported on the 2nd Session of the ICG (Nice, 22–24 May 2006). The ICG restated the urgent need to establish a tsunami warning system for the NEAM region and emphasized the necessity of ensuring full and active participation of all the Member States of the NEAM region, and of the concerned organizations, in the establishment of this tsunami warning system, urging Members States to provide continuous support to the activities of the inter-sessional Working Groups and to the Secretariat for coordinating the process.
- 301 The ICG nominated or confirmed the Chairpersons and co-Chairpersons of the four Working Groups and, through Recommendation ICG/NEAMTWS-II.1, adopted the terms of reference for each Working Group, as well as recommendations for the Plan of Action based on their deliberations. The ICG also proposed three functional levels of the architecture of the tsunami warning system, taking into account the experience of the PTWS. These recommendations will form the basis for the formulation of a complete Plan of Action for the ICG/NEAMTWS that will be presented at its 3rd Session, to be held in Bonn, Germany, in early February 2007.
- 302 Several Member States expressed their appreciation of the work of the ICG/NEAMTWS.
- 303 The United States of America encouraged the NEAMTWS to work through existing programmes and activities, including the ICSU World Data Centre, regional GOOS and GLOSS, and leverage practices in place at ITIC and PTWC. The USA also encouraged collaboration with

other regions, such as the Caribbean and Pacific, on non-seismic sources, interconnected seas, and small-island issues.

304 Tunisia noted that, until now, the number of Member States that have identified tsunami focal points is still very low and informed the Executive Council that Tunisia will communicate the name of its focal point soon.

305 Canada informed the Executive Council that a prototype for a Canadian TWS has been developed with the cooperation of the USA (NOAA) and tested. Canada also noted that storm surges need to be considered in the context of TWSs with a multi-hazard approach. Canada emphasized the need to ensure that the activities of the ICGs concerning the Atlantic Ocean be adequately integrated.

306 Germany confirmed its offer to host the 3rd Session of the ICG/NEAMTWS in Bonn in early February 2007.

307 France also noted the low number of countries that have nominated national focal points and believed that this is mainly due to organizational problems within the Member States. France observed that a regional early warning and mitigation system should be built on existing structures, in particular seismic networks, such those of the Euro-Mediterranean Seismological Centre. France supported the proposal of Working Group 4 presented at NEAMTWS-II to develop Guidelines on Mainstreaming Awareness and Mitigation of Marine-Related and Other Hazards into Integrated Coastal Area Management.

308 The United Kingdom suggested as well that all efforts should be made to build the systems, including those for other ocean-related hazards, making use of existing structures and that, where possible, opportunities for cooperation with existing activities should be considered; for example, the European North West Shelf Operational Oceanographic System, that is generating data which are now available.

309 Portugal expressed its appreciation of the work of the ICG during the inter-sessional period. It expressed the intention of Portugal to host the 4th Session of the ICG/NEAMTWS, towards the end of 2007, during the semester of the Portuguese Presidency of the EU. Portugal also supported the recommendation of ICG/NEAMTWS-II on conducting testing and training for the operation of the NEAMTWS.

310 Norway expressed its support for, and cooperation in, the ICG/NEAMTWS. It stressed that the efficiency and effectiveness of the regional tsunami warning system will require optimal use of existing networks, such as the European Sea-level Service (ESEAS). It supported a multi-hazard approach to the implementation of the ICG/NEAMTWS and to the cooperation with GEO, and called on the IOC Tsunami Unit to coordinate the work of the different ICGs concerned.

311 Greece recalled that it is the country of the European Union with the highest seismic activity and is fully involved in tsunami-related activities, including the organization of the 22nd International Tsunami Symposium. The development of the tsunami early warning and mitigation system will depend on the availability of data and advances in numerical modelling. Cooperation between the ICG and IODE will also be needed, to avoid duplication of effort.

312 The Representatives of UNEP and the Mediterranean Action Plan expressed their willingness and readiness to cooperate closely with the ICG/NEAMTWS.

313 The Executive Council called on the Member States to commit themselves to the establishment of an intergovernmental ocean-related natural-hazards warning system in Europe, building on existing operational oceanographic infrastructures.

314 The Executive Council called on the ICG/NEAMTWS to ensure that its plans take into account the relevant national and international initiatives in the region, and to strengthen its work on other ocean hazards, such as storm surges and harmful algal blooms. It also requested the ICG to establish appropriate linkages with IODE and other IOC activities, and to coordinate its plans with those of the other regions and with activities in the framework of GEO.

4.7.3 Follow-up to the First Session of the IOC Intergovernmental Coordination Group for Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS)

315 The Vice-Chairman of the ICG/CARIBE-EWS, Dr Gustavo Malavé, introduced this item. By Resolution XXIII-13, the Assembly decided: (i) to establish an Intergovernmental Coordination Group for Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS); (ii) that the IOC shall provide the Secretariat of the ICG (ICG/CARIBE-EWS); and (iii) to support through its ITIC the development of communications and capacity-building activities to assist communities to be resilient in the region.

316 Dr Malavé described the four Working Groups that were established at the 1st Session of the ICG/CARIBE-EWS (Bridgetown, Barbados, 10–12 January 2006), namely: 1 – Tsunami and Coastal Inundation Hazard Risk Assessment and Research; 2 – Monitoring and Detection Systems, Warning Guidance; 3 – Warning, Dissemination and Communication; and 4 – Preparedness, Readiness and Resilience.

317 Following a decision adopted at the 1st Session of the ICG/CARIBE-EWS and based on the recommendations of the four Working Groups, the ICG Vice-Chairpersons and some of the Working Group Vice-Chairpersons met during SC-IOCARIBE-IX (Cartagena de Indias, Colombia, 19–22 April 2006) and produced a 22-item Action Plan for the establishment of the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (six action items were added to the original recommendations). SC-IOCARIBE-IX recommended the approval of the Action Plan annexed to its Summary Report (IOC/SC-IOCARIBE-IX/3, Annex V), which was introduced under item 4.5.2 of the present session of the Executive Council.

318 The Vice-Chairman of the ICG/CARIBE-EWS highlighted two recommendations contained in the Action Plan: to call for designating National Focal Points to serve as the point of contact not only for the receipt of and response to warnings, but also for the implementation of recommended actions at the national level; and to carry out national assessments of capabilities, readiness, education and resilience, in order for the ICG to have a clear picture of the needs of the Member States and of the region as a whole.

319 At the invitation of Venezuela, the 2nd Session of the ICG/CARIBE-EWS will take place in Venezuela in the second or third week of January 2007.

320 The United States of America congratulated the ICG/CARIBE-EWS for adopting the multi-hazard approach and encouraged efforts to build resilient communities and partnerships among small island nations. The USA expressed its availability to provide interim regional warning information through the PTWC and ATWC as additional warning and mitigation

capacities develop in the region. As a point of clarification, the USA informed the Executive Council that it does not intend to make the University of Puerto Rico the exclusive operational centre of the system, as was suggested in the report from the ICG Vice-Chairperson. Instead, it is anticipated that a distributed responsibility will be established, with the USA contributing operational and research systems (including the seismic centre in Puerto Rico) to the future collaborative warning and dissemination system.

321 Venezuela congratulated the ICG/CARIBE-EWS and recalled the importance of strong institutions and adequate legal frameworks, regulations and governance for disaster management. Venezuela pointed out the need to include the local communities in the development of the warning network. Venezuela offered training and capacity-building possibilities by Venezuela centres, such as the Instituto Oceanográfico of the Universidad de Oriente in Cumaná and the Caribbean Maritime University.

322 Colombia underlined its interest in developing and strengthening the warning system nationally, and provided information about new seismographic equipment that will be purchased for enhancing the observing network. Also, Colombia described the drill carried out in December 2005 in Tumaco and the role of this kind of activity in education and public awareness.

323 The Dominican Republic reminded the Executive Council of the role of deforestation and its additional impact, especially on the erosion of larger areas by floods.

324 The Executive Council expressed its appreciation of the excellent work accomplished by ICG/CARIBE-EWS and thanked Dr Gustavo Malavé for his report. It thanked Venezuela for its offer to host the 2nd Session of the ICG/CARIBE-EWS.

325 The Executive Council thanked Barbados for having hosted the 1st Session of the ICG for the Establishment of a Tsunami and Other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions, in Bridgetown, 12–14 January 2006.

326 **The Executive Council**, having considered the decisions and recommendations of the ICG/CARIBE-EWS concerning the establishment of a Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions, **endorsed** the ICG's Action Plan.

4.7.4 Follow-up to the Twentieth and Twenty-First Sessions of the IOC Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the Pacific (ICG/PTWS)

327 The Vice-Chairman of the ICG/PTWS, Mr Fred Stephenson, introduced this item. He highlighted the activities of the Member States of the Pacific Tsunami Warning and Mitigation System in the inter-sessional period, including the outcomes of the Pacific-wide tsunami drill, Exercise Pacific Wave 06, which took place on 16–17 May 2006.

328 The 20th Session of the ICG/ITSU (Viña del Mar, Chile, 3–7 October 2005) was the first meeting of Pacific Member States after the Indian Ocean tsunami of 26 December 2004; it therefore provided an opportunity to reflect on the importance of years of commitment to the coordination and the free and open exchange of data to support tsunami warnings, and on how this coordination and experience is providing an example for other regions as they implement regional tsunami warning and mitigation systems. The ICG/ITSU decided to reconvene exceptionally within six months in Melbourne, Australia, before any of the decisions and recommendations of the 20th Session could be brought to the attention of one of the IOC Governing bodies, as required by Rule of Procedure 48.3. Given the urgency and importance of

these recommendations, the Executive Secretary decided to implement them and requested the Executive Council to endorse his decision and consequently approve the recommendations contained in the Summary Report ICG/ITSU-XX/3.

- 329 At its 20th Session, the ICG/ITSU formed five inter-sessional Working Groups whose areas of focus were very similar to those of the Working Groups of other regional tsunami warning systems. The Working Groups met prior to ICG/PTWS-XXI, and requested approval to continue their work through the next inter-sessional period. The ICG instructed the Working Groups to liaise, as appropriate, with analogous Working Groups in other regions. Working Group 2 on Sea-Level Measurements, Data Collection and Exchange met jointly with the ICG/IOTWS Sea-level Working Group, to find synergies in their work and coordinate activities across adjacent ocean basins. The most recent terms of reference for these Working Groups are contained in the Executive Summary for ICG/PTWS-XXI (document ICG/PTWS-XXI/3s).
- 330 The ICG endorsed: continued support for the International Tsunami Information Centre (ITIC); the development of TsunamiTeacher as an important educational initiative intended to improve preparedness by people, groups and governments in at-risk regions, with translations into French and Spanish; and integration of the Historical Tsunami Data Bases presently maintained by the Tsunami Laboratory in Novosibirsk, Russian Federation, and the World Data Centre A (WDC-A) in Boulder, Colorado, USA.
- 331 The ICG decided to conduct a Pacific-wide tsunami warning exercise to test communications at least to the level of the national emergency management, and organized a Task Team, chaired by Australia, to help with preparations. During Exercise Pacific Wave 06, five countries further tested local emergency response plans and carried out community evacuation exercises. An earthquake near Tonga on 5 May 2006 highlighted the communication challenges faced by the Pacific Island States and, in fact, by small-island countries everywhere. Reliable 24/7 communications proved to be a challenge, as was the timely dissemination of messages to local communities. Altogether, 40 IOC Member States participated in one of the tsunami warning and communication exercises. Messages were sent by the PTWC, WC/ATWC and the NWPTAC via the normal operational mediums, and countries were encouraged to make critical and timely decisions and disseminate information and warnings through their standard channels to relevant authorities.
- 332 A preliminary assessment of the exercise indicated strong support for future exercises. Tsunami Warning Focal Points should be regularly reviewed. The need for mechanisms for media involvement was also recognized, since they are a key communicator of information. The ICG/PTWS encouraged the other regional tsunami warning systems to conduct similar tsunami warning and communication exercises, and, in the framework of a Global Ocean-related Hazards and Early Warning and Mitigation System, carry out exercises to test inter-regional communication procedures and formats.
- 333 The ICG expressed its support for the continued efforts of the Working Group on the Central America Pacific Coast Tsunami Warning System, and a new Working Group on Tsunami Warning and Mitigation in the Southwest Pacific Ocean, with Terms of Reference in Recommendations ICG/PTWS-XXI.4 and 5. The South Pacific Applied Geoscience Council (SOPAC) expressed its interest in working closely with this Working Group. The ICG further recognized the need to address tsunami hazards and undertake capacity-building to reduce risks in the South China Sea region. The ICG requested both the PTWC and JMA to provide interim tsunami advisory services for the South China Sea region and develop a communication plan for the South China Sea. The interim service was started in April 2006 and is available to all countries on request.

- 334 The ICG recommended renaming the International Coordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU) the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS) and to revise the Group's Terms of Reference in order to align its name and TORs with the other tsunami warning and mitigation systems established under the auspices of the IOC.
- 335 The ICG/PTWS-XXI decided to establish an inter-sessional Working Group to develop a Medium-term Strategy for the ICG/PTWS, chaired by the Chairperson of ICG/PTWS, to address both inter-regional and global coordination, as well as the concepts of an end-to-end system under the Terms of Reference given in Recommendation ICG/PTWS-XXI.1.
- 336 The ICG/PTWS-XXI also decided to form an inter-sessional Task Team to review proposed PTWC tsunami information bulletin language changes, consider additional changes, and solicit input from all Member States on the potential impact of these changes, in accordance with the US National Weather Service (NWS) standards. This Task Team will also address the need for continued improvement in the timeliness and clarity of messages and other communications, especially recognizing the ready access of the media to tsunami bulletins and the problems caused during the Tonga earthquake and non-destructive tsunamis.
- 337 In 2002 the IOC Executive Council, through Resolution EC-XXXV.1, had previously endorsed a decision of ITSU-XVIII to conduct an independent Programme Review. That has not been done, and, in view of the dramatic changes in tsunami warning and mitigation since December 2004, the ICG requested of the IOC Executive Council that this Programme Review be further postponed until such time as a full review of the IOC tsunami programme can be carried out.
- 338 The Vice-Chairman of the ICG requested the consideration of the Executive Council on: (i) additional extra-budgetary support and/or secondment of individuals to assist with the implementation of ITIC programmes; (ii) the need to encourage voluntary contributions to the IOC Trust Fund earmarked for the PTWS in support of the operational programmes of the ICG/PTWS and the ITIC; (iii) an instruction to the IOC Executive Secretary to streamline and document the procedure for Member States to make contributions to IOC Trust Funds.
- 339 At its 21st Session, the ICG decided to organize its 22nd Session in October 2007 and accepted the offer of Ecuador to host the 22nd Session. The ICG further accepted the offer of Samoa to host the 23rd Session in 2009.
- 340 Australia reported that \$ 20 million is planned to help 12 South Pacific countries over the next two years, which will improve the detection and monitoring of tsunamis in the region, and further reported that its 24/7 warning centre was in interim operation. Several new members to the IOC and ICG/PTWS have been recruited. Australia highlighted the need to develop a strategy for working with the media so that accurate information is conveyed to the public.
- 341 Canada called on the IOC to take account of the significant decrease in the Regular Programme funding for the PTWS over the years. However, Canada indicated that it would again make a contribution to the PTWS, as it did last year.
- 342 Chile called attention to the important concern, for some countries, to take into account both the local and the distant tsunami threat, noting that preparedness and strong stakeholder coordination, with redundancy in communications, and sub-regional cooperation are all essential for an effective course of action to save lives. Chile offered its assistance in sharing its experience and technical assistance with all interested Member States.

- 343 Ecuador welcomed the opportunity to host the ICG/PTWS-XXII in 2007. Noting that 30 January 2006 marked the 100th anniversary of the worst tsunami disaster in the history of Ecuador, it emphasized also the importance of local readiness and the engagement of research institutions and the media in building awareness, since every partner is needed to sustain tsunami mitigation at a high political level.
- 344 The Russian Federation reported on its planned enhancements to its data networks, numerical modelling capabilities, and tsunami warning centres, and stated its strong interest in the development of non-seismic detection of tsunamis under the Group's Medium-term Strategy. It expressed appreciation to Japan for its contributions, and welcomed Member State cooperation and collaboration in its conduct of marine surveys of the sub-region.
- 345 Japan informed Member States that the NWPTAC, an in-kind contribution from Japan to the PTWS, had issued five advisories for the northwest Pacific Ocean, in close cooperation with the USA PTWC, in order to help countries mitigate the impact of tsunamis, and expressed its ability to continue the interim service for the region.
- 346 Peru reported much progress in making available real-time data to its national warning centre and the construction of coastal inundation maps for the development of evacuation plans. Peru stated it would make a voluntary contribution to the IOC Trust Fund for the PTWS and assist in the translation of TsunamiTeacher into Spanish.
- 347 The Republic of Korea reported that, in addition to its seismological enhancements, the National Oceanographic Institute will help to support the USA DART instrument(s) in the northwest Pacific. China noted the positive and important influences in building awareness and avenues for data sharing that resulted from Exercise Pacific Wave 06. It took note of Japan's offer of a long-term commitment of the NWPTAC to the South China Sea, but noted that it should continue on an interim basis until a full discussion could take place at the next ICG/PTWS.
- 348 The United States of America supported the recommendation to establish an ICG for the PTWS, including the role of ITIC as a Programme Office. The USA reaffirmed its commitment to the strengthening of other national systems and information services and its offer to provide technical support for capacity development. The USA encouraged all IOC Member States to leverage the operational experience, interoperability, warning formulation and dissemination standards of PTWS. The USA also invited greater collaboration in sustaining observational networks, including making available ships to assist in the operation and maintenance of the strengthened deep-ocean assessment and reporting (DART II) network.
- 349 Australia, Canada, Chile, China, Colombia, France and Peru expressed their appreciation of the Exercise Pacific Wave 06 and hoped that future exercises would be organized.
- 350 The Chairman thanked the ICG/PTWS for its report on its activities.
- 351 **The Executive Council**, recognizing the important contributions made in the aftermath of the Indian Ocean tsunami, based on the ICG's 40 years of experience, **acceded** to the ICG's wish to delay the Programme Review; **it also called for** further voluntary contributions to the IOC Trust Fund for the PTWS, while thanking Member States who had already pledged assistance during the present Session.

352 **The Executive Council decided** to rename the International Coordination Group for the Tsunami Warning System in the Pacific (ICG/ITSU) the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS).

353 The Executive Council thanked Chile and Australia for having hosted, respectively, the 20th Session of ICG/ITSU and the 21st Session of ICG/PTWS.

354 **The Executive Council adopted** Resolutions EC-XXXIX.8 and EC-XXXIX.9.

4.7.5 Follow-up to the Report of the ad hoc Working Group on the Framework for a Global Tsunami and Other Ocean-related Hazards Early Warning System

355 The Chairman of the ad hoc Working Group on the Framework for a Global Tsunami and Other Ocean-related Hazards Early Warning System, Dr Francois Gérard (also Chairman of I-GOOS), reported the results of the first meeting of this Working Group, established by the IOC Assembly at its 23rd Session through Resolution XXIII-15. The meeting was attended by 23 IOC Member States, the Chairpersons or Vice-Chairpersons of the ICG/PTWS, ICG/IOTWS, ICG/NEAMTWS, ICG/CARIBE-EWS, JCOMM, IODE, IOC Regional Subsidiary Bodies, as well as WMO, IHO, GEO, SOPAC and ICSU.

356 Two background papers were presented at the meeting. The first, on “The Role of the IOC in the Context of an Ocean-related-Hazard Warning and Mitigation System”, which explained how a possible interaction between IOC bodies and programmes should be implemented to ensure sustainability of an operational ocean-related multi-hazard system. The second was on “Developing Global Synergies amongst Regional Ocean-related Hazard Warning and Mitigation Systems”. It especially emphasized the necessary collaboration and coordination of activities with the governing bodies of other organizations than IOC and the need for ‘best practice’ implementation. The Chairman of the ad hoc Working Group emphasized the fact that, during the meeting, several cross-cutting issues and, explicitly, the need for harmonization, standardization and “best practice”, as well as for outreach, were mentioned.

357 The four ICG representatives reported on common issues and problems and identified priorities of common interest.

358 Representatives of WMO, GEO, IHO and ICSU referred to the positive synergies to be developed within an integrated marine-related hazard warning system, using existing networks and products.

359 The ad-hoc Working Group had concluded that, in view of the complexity of the issues and the necessary consultation with Member States and other organizations, more time was needed for the ad hoc Working Group to fulfil its mandate. The ad hoc Group proposed to concentrate its efforts on the preparation of a framework document for presentation to the IOC Assembly at its 24th Session.

360 The Russian Federation recommended preparation of a complete list of coastal-related natural hazards and emphasized the need to cooperate closely with WMO on forecasts on different time-scales.

361 The United Kingdom outlined the possibility to take remote sensing and micro-satellites into account and asked the Working Group to consider incorporating these aspects when developing the framework document.

362 Italy appreciated the fact that the Chairman of I-GOOS had taken over the responsibility of chairing the ad-hoc Working Group. He stressed the need to harmonize inundation mapping and standardize warning procedures for touristic regions.

363 France expressed its concern about the complexity of the system established by IOC and recommended that a synthesis of the work performed by the four ICGs concerned be made by the Executive Secretary for presentation to the Assembly at its 24th Session.

364 Nigeria thanked the Chairman for the good summary report on the 1st meeting. He also urged the Working Group to take into account those regions of the globe that are not yet covered by one of the existing ICGs, especially the southwest Atlantic Ocean.

365 The Executive Council acknowledged the lack of an ICG for this region and the need to take steps to fill this void.

366 China noted the timely creation of the ICG/CARIBE-EWS and the establishment of the global architecture, which expressed the need to coordinate with IOC regional bodies in capacity-building and the development of ocean-hazard-related projects.

367 Given the progress that the several regional ICGs had reported during the present session, Australia emphasized the need to urgently prepare the framework document on the global architecture to ensure strong links and harmonization and to make it available for consultation at the forthcoming ICGs' meetings.

368 The Executive Council acknowledged the report from the Chairman of the ad hoc Working Group, on the progress in the Group's work and the present status of the framework document.

369 **The Executive Council agreed** to extend the mandate of the ad hoc Working Group until the end of the 24th Session of the Assembly, and accepted the Guidelines in [Annex V](#) to the present Summary Report.

370 The Executive Council accepted the offer from Dr François Gérard to continue in his capacity as Chairman of the ad hoc Working Group.

5. ADMINISTRATION AND MANAGEMENT

5.1 MAIN LINES OF ACTION FOR THE DRAFT PROGRAMME AND BUDGET FOR 2008–2009

371 The IOC Vice-Chairman Neville Smith introduced this item. He reported that the Sessional Programme and Budget Committee had held three meetings. The first meeting of the Committee was devoted to the examination of the Report on Budget Execution (2004–2005) and the Budget Outline and Progress Report for 2006 (document IOC/EC-XXXIX/2 Annex 2).

372 The Committee confirmed that the budget for 2004–2005 has been executed in accordance with the Programme and Budget for 2004–2005.

373 The Committee noted that the full support provided by Member States to activities of the Secretariat are not always covered by financial statements; specifically, funds put at the disposal of the Secretariat, but financially managed and audited elsewhere. The Committee agreed that a

mechanism should be developed for explicitly displaying such contributions, for the information of the Member States.

374 At its second intra-sessional meeting, the Committee discussed the initial execution of the Programme and Budget 2006–2007 and several aspects of budget presentation.

375 The Committee considered several aspects of the debate at the present session of the Executive Council and the Draft Resolutions with implications for the 2006–2007 Budget. This discussion revealed one aspect: the agreed budget and criteria adopted for IOC Resolution XXIII-16 were inconsistent (Ostend Office Staff, MLA 2). The discussion also suggested further clarification was needed of the budgetary measures adopted to meet the commitment to support the WCRP (paragraph 85 of the Summary Report IOC-XXIII/3).

376 The Committee noted the several interventions, which pointed to the significant stress being placed on Programmes by the lack of sufficient Regular Budget resources for 2006–2007 budget execution. It noted the comments of the Executive Secretary and several Member States concerning the stresses resulting from instructions from the IOC Assembly at its 23rd Session, specifically in relation to the WCRP, to regional activities and to staff supported from the Regular Budget, which, in the Executive Secretary's view, were unsustainable in their present form.

377 The Committee recognized the considerable success in supporting the Programme of the IOC through extra-budgetary contributions, both for specific scientific and technical activities and for capacity-building and regional activities.

378 The Committee noted specific requests for additional Regular Budget support from IOCINDIO, IOCARIBE, IOCWIO and WESTPAC. It concluded that the appropriations defined for 2006–2007 by IOC Resolution XXIII-16 should be retained, but suggested that these requests should be conveyed through to the discussion of the 2008–2009 Budget at the 24th Session of the IOC Assembly.

379 The Committee noted that, in some instances, it was likely that the critical, minimum level of resources needed for regional activities was not being met and that the sustainability of such activities was now in doubt. It requested the Inter-sessional Working Group for Regional Programmes to develop further advice on this matter.

380 The Committee noted the debate on the regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects (item 4.1.1) and the outline of the budget developed by UNEP and IOC to support this activity. Though UN Resolution A/RES/60/30 specifically requires that the Assessment of Assessments "*be financed through voluntary contributions and other resources available to participating organizations and bodies*", the Committee noted that there were implications for MLA 1 (Ocean Science) and that the Executive Secretary should take these into account.

381 The Committee agreed: (i) to adjust the 2006–2007 Budget outline to include the actual cost of the Ostend Office staff in MLA 2 and to spread the consequent adjustments *pro rata* across the whole Programme; and (ii) to clarify the sources of the contribution to the WCRP.

382 The Committee's third intra-sessional meeting was devoted to discussion of budget management, initial consideration of the outline for the 2008–2009 Programme and Budget, and to preparing the Draft Resolution on this item.

- 383 As noted in the Budget Outline and Progress Report for 2006, (document IOC/EC-XXXIX/2 Annex 2), the budget appropriations to the Main Lines of Action agreed at the 23rd Session of the Assembly (the sub-totals in the Table) are subject to a 13.4% overhead to cover the cost of management and financial services provided by UNESCO, independently of the IOC Secretariat.
- 384 However, since the costs cited for staff do not include this overhead, it appears overall as a reduction in the resources available for programme implementation. The Committee suggested that, in future budget reports to the Executive Council or Assembly, this cost be explicitly captured, for each Main Line of Action.
- 385 Document IOC/EC-XXXIX/2 Annex 2 also drew attention to aspects of support for Secretariat activities that are not reported through the UNESCO financial system. The Committee suggested that, in future reports on Budget execution, this fourth type of funding be included for the information of IOC Member States.
- 386 The Committee also considered the issue of actual budget for projects, including real costs to the Secretariat arising from its involvement in extra-budgetary projects and other initiatives. It concluded that the actual costs were not always transparent and that a systematic approach to such budgets was needed. The Committee also noted the need for information on the total value (budget) of IOC projects and initiatives, so as to inform Member States and partners of the size of activities within the scope of IOC.
- 387 The Executive Council instructed the Executive Secretary, with the assistance of the Vice-Chairman responsible for budget matters, to develop advice on these matters in the form of a framework and set of guidelines and principles. The framework should include: (i) the scope of the initiative (the nature of the investment); (ii) field(s) of activity relative to the MLAs of IOC and their sub-objectives; (iii) the roles, functions and responsibilities of participants, including the IOC Secretariat; and (iv) budget details – a profile of the resources.
- 388 The Committee suggested that the Executive Secretary should take account of the budget advice provided by the Executive Council and report to the IOC Assembly, at its 24th Session, on the adjustments to and execution of the 2006–2007 Budget, in line with these decisions.
- 389 To improve the IOC's internal planning and to address more efficiently the staffing problem, the Committee considered it appropriate that the Executive Council instruct the IOC Executive Secretary to report to the IOC Assembly, at its 24th Session, on the deployment of staff resources to meet effectively and efficiently the IOC's objectives for the present biennium and in the next Medium-term Strategy for 2008–2013, including the request to reinforce the Capacity-Building Section.
- 390 In the short ensuing discussion, South Africa and Nigeria expressed their concern about what they see as a lack of alignment of the IOC programmes with those of UNESCO in terms of the priority given to the African continent. Although the Draft Medium-term Strategy contains an explicit reference to the Johannesburg Plan of Action and the Millennium Goals, it should also include a concrete strategy for Africa.
- 391 **The Executive Council adopted Resolution EC-XXXIX.10.**

5.2 DATES AND PLACES FOR THE FORTIETH AND FORTY-FIRST SESSIONS OF THE EXECUTIVE COUNCIL

392 Vice-Chairman IOC, Neville Smith, introduced this item. Taking into account the recommendations of the Assembly on this matter and bearing in mind that the Executive Council, at its 40th Session, will act as the Steering Committee for the 24th Session of the Assembly in 2007, the Executive Council will meet for half a day on the day (Monday 18 June 2007) preceding the opening of the 24th Session of the Assembly (19–28 June 2007).

393 The Executive Council decided to hold its 41st Session from Tuesday 24 June to Tuesday 1 July 2008, for a total of six working days, leaving the final decision of shortening it by one day to the IOC Officers and the Executive Secretary, taking into account the Agenda for the 41st Session of the Executive Council.

394 The Executive Council stressed the importance of making the documentation available sufficiently in advance of the session to reflect positively on the efficiency of the session and its schedule of work. In particular, it stressed the necessity of having the Action Paper available in all working languages six weeks in advance of the session.

5.3 RECRUITMENT PROCESS OF THE IOC EXECUTIVE SECRETARY

395 The Chairman introduced this item. He informed Member States that, given the fact that the statutory retirement age of Dr Patricio Bernal will arrive in the second half of 2007, the intended purpose of this agenda item was to clarify the procedure for consultation with the Director-General on the appointment of a new Executive Secretary of the Commission, at the level of Assistant Director-General. However, recently, the Director-General informed the Officers of the Commission of his decision to extend the appointment of the current Executive Secretary beyond the second half of 2007. This implies that the recruitment procedure will most probably not need to be initiated in 2007, thus giving more time to the Executive Council to clarify the procedure.

396 The Chairman then referred to Document IOC/EC-XXXIX/2 Annex 5, which is an updated version of document IOC/EC-XXIX/2 annex 5, which was discussed by the Executive Council at its 29th Session (24 September–4 October 1996). He emphasized that the proposed procedure provides sufficient time for Member States to evaluate candidates before they express their opinion at an in camera session of the Executive Council, as established in the procedure. He also pointed out that the actual procedure used in 1997 allowed Member States to express their order of preference of three candidates (three votes for the first preferred candidate, two votes for the second, and one vote for the third). To reflect this, paragraph 12 of Document IOC/EC-XXXIX/2 Annex 5 could be modified.

397 The Executive Secretary commented on the specific roles of the Director-General and the IOC Governing Bodies in the evaluation of the performance of the Executive Secretaries of the Commission, as clarified by the IOC Assembly at its 23rd Session. He further recalled that the consultation on the recruitment of the IOC Executive Secretary, Assistant Director-General for IOC, is a unique feature of the IOC, departing slightly from the normal UNESCO standard recruitment procedure, insofar as the elected officers of IOC assume the responsibility of the Selection Panel in the standard procedure, designating the short list of best candidates.

398 Mr Geoff Holland (Canada), former Chairman of the Commission (June 1995–July 1999), suggested that special attention should be paid to the format of applications, with a standardized document that will simplify Member States' evaluation of candidates. Portugal and

Germany agreed that Member States should express their order of preference when selecting their three candidates.

399 **The Executive Council decided** that the procedure used in 1997 for the consultation with the Director-General on the appointment of the next Executive Secretary of IOC would be followed, but that the details would be finally decided at its 40th Session in June 2007.

6. **OPEN MEETING WITH UNESCO DIRECTOR-GENERAL**

400 The Chairman invited the Director-General of UNESCO, Mr Koichiro Matsuura, to address the Executive Council, and reminded Member States that the intervention of the Director-General would be followed by a short session of questions and answers with Member States of the Commission.

401 The Director-General expressed his pleasure at being invited to address the IOC Executive Council to share with Member States his views on common areas of concern emerging from programme implementation, the challenges that UNESCO and the UN are facing, and the outlook for the future as UNESCO prepares the Medium-term Strategy for 2008–2013. Recalling the catastrophic tsunami of 26 December 2004, he considered that the international community had reacted with a wealth of solidarity, goodwill and material aid, but it will take many years before the affected countries recover the many livelihoods lost to the tsunami. He recalled that, immediately after the tragedy, IOC started to promote a global strategy to provide the whole world with protection from the tsunami hazard.

402 He expressed his satisfaction with the role played by IOC in leading the response to the tsunami tragedy; indeed, the Indian Ocean highlighted the strategic importance of IOC. The skills and competences of UNESCO and its IOC have been fully recognized within the UN system, and beyond. If, before the 2004 tragedy, few knew about UNESCO's strong involvement in ocean sciences and services through IOC, the world was genuinely surprised when they learned that the IOC of UNESCO had established a Tsunami Warning System for the Pacific as early as 1965. UNESCO's work in establishing the IOTWS is now applauded and recognized at all levels, including by the UN Secretary-General.

403 While progress made is significant, the Director-General called the attention of Member States to the fact that this successful work is far from being finished. The first national plans that will eventually reinforce this initial system have delivery dates in 2007 and 2008. Furthermore, the new systems need to be tested in real situations. Overall, great capacity-building is needed all across the board. He further emphasized that there are two big challenges facing IOC and its Member States:

- First, the need to ensure that everything that has been done to date and, more importantly, all that needs to be done from now on, becomes seamlessly part of the internationally coordinated efforts under the governance provided by IOC. The challenge and the effective open and free exchange of data and the full interoperability of the systems is crucial for success.
- Second, we need to ensure that the investment in detection networks, essential for having the “upstream flow” of data needed to issue an early warning, are accompanied by a parallel long-term investment securing the “downstream flow” of information from the warning centres to populations and communities at risk.

- 404 With respect to the second challenge, the Director-General indicated the need to pay attention to the experience that the humanitarian and disaster communities since the establishment of the UN International Decade for Disaster Reduction after the Kobe earthquake in Japan in 1995. National governments must take responsibility for issuing warnings in their territories and for ensuring the downstream flow of information from the centre to the periphery. National governments are also responsible for putting in place and implementing the necessary awareness and emergency-preparedness plans and for securing their relentless implementation. This requires a high level of political will.
- 405 Turning to programme and budget matters, he recalled that UNESCO's last Programme and Budget has reinforced the work on natural disasters in the Organization, and we should then ensure close coordination between IOC and the natural disaster unit in UNESCO. He commended the Executive Council that, in discussions about the draft IOC Medium-term Strategy 2008–2013, which has an impact on the broader UNESCO process, it considers re-shaping part of the programme to build a stronger Natural Hazard Line of Action, with a view to bringing together the tsunami effort with integrated coastal-zone management, the IOC–IHO mapping programme and the development of GOOS. This process could benefit from the integration of IOC's activities with the GEOSS 10-Year Implementation Plan.
- 406 The Director-General reminded the Executive Council that the UNESCO General Conference had instructed him to conduct an Overall Review of Major Programmes II 'Natural Sciences' and III 'Social and Human Sciences'. This work is in progress under the chairmanship of the Deputy Director-General, and he expects that the panel will consider suggestions to integrate IOC into a holistic approach with the rest of UNESCO activities.
- 407 The Director-General expressed his view that, from reading IOC's reports, it is clear that IOC has a significant scope to grow and to consolidate its work. For example, as the tsunami warning system demonstrates, IOC is expanding its operational work. The question that arises then, is whether it is reasonable to expect that the Governing bodies of UNESCO, considering the organization's programme and effectiveness as a whole, will be willing to support the needed growth of IOC, thus curtailing other areas of work in UNESCO? If the general criterion is to maintain a zero nominal growth for the next budget, as several Member States have already suggested, it will be very difficult to have any flexibility at all.
- 408 He concluded that, despite the many difficulties, he looks to the future with optimism. We need to accept the new conditions under which the UN is operating today and make the best use of the opportunities that are offered to us. Judging from its very successful role in providing and leading the UN response to the tsunami, the IOC is well positioned to continue to be an even more powerful Flagship of UNESCO.
- 409 The Director-General told the Executive Council that, since his appointment as ADG/IOC Executive Secretary for IOC, Patricio Bernal has shown his entire commitment to the organization. Bearing in mind the tasks facing the organization and Patricio Bernal's commitment, he has decided to extend his appointment for two years beyond his normal retirement date; that is, a two-year extension as from September 2007.
- 410 The Director-General's full statement is in [Annex III-A](#).
- 411 The Chairman then invited questions from Member States to the Director-General.
- 412 The United States of America requested clarification on the financial and programmatic significance of being designated a "Flagship programme" within UNESCO.

- 413 Belgium asked how come that the IOC, despite the excellent work of the Secretariat, has to cope each biennium with a continuing decrease in the Regular Budget, while the workload increases considerably? Belgium urged the Director-General to consider seriously an adjustment of IOC's Regular Budget and staff allocation so that IOC can fulfil in a more proper manner UNESCO's commitments. In a written statement, Belgium added that UNESCO has gained a considerable reputation through IOC's involvement in global science, operational and ocean service programmes, such as the World Climate Research Programme (WCRP), Global Ocean Observing System (GOOS) and the International Data and Information Exchange Programme (IODE), as well as through its response to the Indian Ocean tsunami.
- 414 Speaking on behalf of the African Member States of IOC, South Africa acknowledged and thanked the Director-General for his commitment to developing countries and African countries in particular. He then reminded the Executive Council that the 33rd General Conference of UNESCO decided that the overriding focus of UNESCO programmes and budget should be on achieving the Millenium Development Goals within UNESCO's fields of activities, in the G77 and with particular attention to Africa, where the least progress has been registered towards achieving the MDGs. South Africa signalled that Africa supports the contribution of IOC to the development of tsunami early warning systems in the Indian Ocean and the Caribbean and would like it also to be extended to Africa as whole. He then pointed out the discrepancy between the African priority of UNESCO and the IOC programmes and Regular Budget allocations, as well as the absence of African experts in major IOC working groups and programmes. South Africa requested that, in the IOC Medium-term Strategy 2008–2013, funding and secretariat support be allocated to the regional Ocean Observing and Forecasting Systems for Africa and for the empowerment of African capacities and full use of existing African expertise, for developing and implementing programmes in Africa. He then recalled Decision 02240 of the 30th General Conference of UNESCO on the geographical or gender balance in the staff composition of IOC, which is still awaiting implementation. South Africa called for the use of African expertise in African programmes and for mobilizing internal resources with regional institutions and foundations within Africa.
- 415 The United Kingdom thanked the Director-General for his presentation and commented on the reform of the UN and of UNESCO. The United Kingdom recalled that there are many meetings within UNESCO that the Director-General could attend where requests for extra resources are often being made. In this sense, the Overall Review of the science sectors provides a significant opportunity that will confirm what the top priorities are and will try to avoid duplication. It will also give recognition to the significant work undertaken by UNESCO and its various bodies. It will also obtain the recognition of the Executive Board. The United Kingdom thought it was unclear how the inputs from the IOC Executive Council would be fed into the work of the Overall Review Committee and sought guidance from the Director-General as to how this could be done in order for the IOC's deliberations and decisions to have an impact on the content of the new UNESCO Medium-term Strategy.
- 416 China commended the Director-General for his personal commitment and support to the work of IOC. In accomplishing its mandate IOC enjoys a well-established reputation for its unique and leading role in dealing with ocean science, service and capacity-building within the UN system. The role of IOC in developing regional and global tsunami warning and mitigation systems enhanced such recognition. However, China noted with concern that IOC is now facing severe budget restrictions in spite of its dramatically increasing responsibilities, which lead to the decreased visibility of IOC, as well as UNESCO, at regional and global levels. China strongly urges UNESCO to give full consideration to the possibility of increasing Regular Budget and the staff allocation of IOC in the preparation of the next 34 C/5 and 35 C/5 documents. China also

expressed its wish that this exchange of view with the Director-General could become routine at each IOC Assembly or Executive Council.

417 Italy commended the Director-General for his commitment and support to IOC and thanked him for his presentation. Italy shares the concerns raised by Belgium and China on the reduction in the budget of IOC. Italy highlighted the fact that, while national commitment is important it cannot replace the responsibility of intergovernmental organizations. UNESCO must provide a clear political message taking account of the strategic importance of IOC not only with respect to tsunamis but also to ocean observing systems.

418 Chile added its thanks to Director-General for his presentation and asked for a clear definition of priorities in UNESCO with respect to the work of IOC. From the perspective of Chile, the activities of IOC have a relevant socio-economic impact that should be acknowledged by UNESCO and encouraged by an appropriate Regular Budget allocation and not only depend on additional extra-budgetary support.

419 The Chairman then invited the Director-General to address the questions raised by Member States in their interventions.

420 The Director-General, in his response to the intervention of the United Kingdom, recalled that, at the UN level, there is a High-Level Panel on System-Wide Coherence, created to address the current fragmentation of the UN's operational activities in development, humanitarian assistance and the environment. The Panel's final report is expected in August or September of 2006. While this is an ongoing process, it is clear that its outcomes would help to streamline the discussion on UNESCO's future, including the 34 C/4 and C/5 processes. The Overall Review of the Natural and Social Sciences Programmes should also provide a more clear indication, this time from UNESCO's Member States, on how to proceed. Up to now, only one principal priority is assigned by each sector within UNESCO, with Water and Ecosystems defined as the priority for Natural Sciences. Certainly there are other priorities, with natural disasters being one of them, but the main focus is already established. With regard to IOC, the Director-General looks forward to receiving clear indications from its Member States on the internal priorities and waiting for the outcome of the Overall Review. The discussion within IOC should then provide inputs to the Overall Review on the internal priorities of IOC.

421 Referring to Programme and Budget matters, the Director-General indicated that the policy of a zero-real-growth budget implied a net reduction in the UNESCO budget and had consequences that included reduction in the staff allocation. While he would like to avoid further reductions, UNESCO is making every effort to streamline processes and reduce costs, for example on production of documentation and translation, with the support and comprehension of Member States. He stated that, even with these restrictions, he was able to add an additional post to the IOC staff allocation in the 33 C/5, for the biennium 2006–2007. In addition, new posts with extra-budgetary funds have been created in IOC, in particular for the IOC tsunami unit.

422 With respect to the flagship status, the Director-General indicated that this reflects that the programme attracts visibility. In this particular case, it indicates that IOC is indeed a very important activity, but it does not imply an automatic increase in budget or staff allocations. He pointed out that he receives requests for budget increases from Member States in sectoral meetings for specific programmes, but when it comes to the Executive Board, he faces the decision of not giving more, but on the contrary to reduce. This is a big dilemma the Director-General is always confronted with.

423 Responding to the intervention of South Africa, he confirmed his commitment to the regions and in particular to Africa, which is a priority in UNESCO, and especially on education. The Director-General recalled that, in the context of the Indian Ocean Tsunami Warning and Mitigation System, UNESCO and its IOC are already covering East African countries, while North African countries are part of the North Atlantic and Mediterranean Tsunami Warning and Mitigation System. As far as he has been informed, there is not an urgent need to establish a tsunami warning system in West Africa, because this is a low-level risk region for tsunamis. With respect to the gender and geographical balance within the Secretariat, he said that he was very proud to say that UNESCO has more than 160 nationalities working in the Secretariat within the total of 900 professional staff subject to geographical balance, with an equitable distribution for genders; however, it is not reasonable to expect that such balances would be reflected equally at each sector or division level. With respect to IOC, as well as to other specific programmes or sectors, it is not easy for him to achieve geographic balance in each programme, and, in programme sectors, the first criterion of selection is professional competence, though with due attention to geographical distribution.

424 The Chairman thanked the Director-General, on behalf of Member States, for accepting the invitation of the Executive Council. He further confirmed that the current state of knowledge about the risk of tsunamis in West Africa indicates that this is a low-risk region, while there are other hazards that may deserve IOC's attention.

7. ADOPTION OF RESOLUTIONS AND SUMMARY REPORT

425 The Chairman of the Technical Review Committee for Draft Resolutions, Mr Geoff Holland, presented his report to the Executive Council; it is in [Annex VI](#).

426 The Executive Council took note of the Committee's recommendations to improve the preparation and processing of Draft Resolutions and thanked the Committee's Chairman for his hard work in this respect.

427 **The Executive Council adopted** the Summary Report and the Resolutions of its 39th Session.

8. CLOSURE

428 The Chairman closed the 39th Session of the Executive Council at 05.34 p.m. on Wednesday 28 June 2006.

ANNEX I

AGENDA

1 . OPENING

2. ORGANIZATION OF THE SESSION

- 2.1 ADOPTION OF THE AGENDA
- 2.2 DESIGNATION OF THE RAPPORTEUR
- 2.3 ESTABLISHMENT OF INTRASESSIONAL COMMITTEES
- 2.4 INTRODUCTION OF TIMETABLE AND DOCUMENTATION
- 2.5 ROGER REVELLE MEMORIAL LECTURE

3. DEVELOPMENTS SINCE THE 23rd SESSION OF THE IOC ASSEMBLY

- 3.1 REPORT BY THE IOC CHAIRMAN
ON THE STATE OF THE COMMISSION
[Rule of Procedure No. 21.2c]
- 3.2 REPORT BY THE EXECUTIVE SECRETARY ON
PROGRAMME AND BUDGET IMPLEMENTATION
[Rule of Procedure No 49.1]

4. PROGRAMME MATTERS REQUIRING DECISIONS BY THE EXECUTIVE COUNCIL

- 4.1 GENERAL POLICY ISSUES
 - 4.1.1 Regular Process for Global Reporting and Assessment of the State
of the Marine Environment, including Socio-Economic Aspects
[Rule of Procedure No. 21.2c]
 - 4.1.2 IOC Draft Medium-term Strategy (2008–2013)
[Inst. XXIII Item 3.1. para. 28]
 - 4.1.3 IOC Participation in the International Polar Year 2007–2008 and in the
International Year of Planet Earth 2007-2009
[Dec. XXIII Item 3.2. para. 35; Inst. EC-XXXVII Item 4.1.7 para. 99]
 - 4.1.4 Secretariat Report on the Global Earth Observation System of Systems
(GEOSS) Implementation
[Rule of Procedure No. 21.2c]
- 4.2 OCEAN SCIENCES
 - 4.2.1 Cooperation between the Census of Marine Life
and IOC Main Lines of Action
[Res. IOC XXIII-3; Rule of Procedure No. 21.2a]
 - 4.2.2 Report of the Advisory Group for the Ocean Sciences
[Rule of Procedure No. 21.2c]

- 4.2.3 Member State Interaction with the WMO–ICSU–IOC
World Climate Research Programme (WCRP)
[Rule of Procedure No.21.2c]

4.3 OCEAN OBSERVATIONS AND SERVICES

- 4.3.1 Follow-up to the Second Session of the WMO-IOC
Joint Technical Commission for Oceanography
and Marine Meteorology (JCOMM)
[Rule of Procedure No. 48.3]
- 4.3.2 Secretariat Report on Global Ocean Observing System (GOOS)
Programme Implementation
[Rule of Procedure No. 21.2c]
- 4.3.3 Progress with the Development of an IOC Strategic Plan for Oceanographic
Data and Information Management
[Res. EC-XXXV.2, Doc. XXIII Item 4.3.1 paras. 118-119]

4.4 CAPACITY-BUILDING, TEMA AND PUBLIC AWARENESS

- 4.4.1 Executive Secretary Report on Implementation
of the IOC Capacity-Building Strategy
[Rule of Procedure No. 21.2c]

4.5 REGIONAL ACTIVITIES

- 4.5.1 Follow-up to the Fourth Session of the IOC Regional Committee
for the Central Indian Ocean (IOCINDIO)
[Rule of Procedure No. 48.3]
- 4.5.2 Follow-up to the Ninth Session of the IOC Sub-Commission
for the Caribbean and Adjacent Regions (IOCARIBE)
[Rule of Procedure No. 48.3]
- 4.5.3 Follow-up to the Sixth Session of the IOC Regional Committee
for the Western Indian Ocean (IOCWIO)
[Rule of Procedure No. 48.3]
- 4.5.4 Follow-up to the Report of the Inter-sessionnal Working Group
on Regional Programmes
[Res. XXIII-6; Rule of Procedure 21.2a]

4.6 UNITED NATIONS CONVENTIONS AND AGREEMENTS

- 4.6.1 Follow-up to the Sixth Session of the IOC Advisory Body of Experts on the
Law of the Sea (IOC/ABE-LOS VI)
[Res. XXIII-8; Rule of Procedure No. 21.2a]

4.7 TSUNAMI ACTIVITIES

- 4.7.1 Follow-up to the First and Second Sessions of the IOC Intergovernmental
Coordination Group for the Indian Ocean Tsunami Warning and Mitigation
System (ICG/IOTWS)
[Rule of Procedure No. 48.3]

- 4.7.2 Follow-up to the First and Second Sessions of the IOC Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS)
[Rule of Procedure No. 48.3]
- 4.7.3 Follow-up to the First Session of the IOC Intergovernmental Coordination Group for Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS)
[Rule of Procedure No. 48.3]
- 4.7.4 Follow-up to the Twentieth and Twenty-First Sessions of the IOC Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the Pacific (ICG/PTWS)
[Rule of Procedure No. 48.3]
- 4.7.5 Follow-up to the Report of the ad hoc Working Group on the Framework for a Global Tsunami and Other Ocean-related Hazards Early Warning System
[Res. XXIII-15; Rule of Procedure No. 21.2a]

5. ADMINISTRATION AND MANAGEMENT

- 5.1 MAIN LINES OF ACTION FOR THE DRAFT PROGRAMME AND BUDGET FOR 2008–2009
[Res. XXIII-16; Rule of Procedure No. 21.2a]
- 5.2 DATES AND PLACES FOR THE FORTIETH AND FORTY-FIRST SESSIONS OF THE EXECUTIVE COUNCIL
[Rules No. 4 and 19.2]
- 5.3 RECRUITMENT PROCESS OF THE IOC EXECUTIVE SECRETARY
[Statutes of the Commission, Article 8]

6. OPEN MEETING WITH UNESCO DIRECTOR-GENERAL

7. ADOPTION OF RESOLUTIONS AND SUMMARY REPORT

8. CLOSURE

ANNEX II

ADOPTED RESOLUTIONS

N°:	Agenda Item	Title	Page
1	4.1.2	IOC Draft Medium-term Strategy (2008–2013)	2
2	4.3.1	Second Session of the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM-II)	4
3	4.4.1	The Role of UNESCO/IOC Chairs in capacity-building initiatives	5
4	4.5.1	Fourth Session of the IOC Regional Committee for the Central Indian Ocean (IOCINDIO)	6
5	4.5.2	Ninth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE)	7
6	4.5.3	Sixth Session of the IOC Regional Committee for the Western Indian Ocean (IOCWIO-VI)	8
7	4.6.1	Sixth Meeting of the IOC Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS VI)	10
8	4.7.4	Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System	11
9	4.7.4	Follow-up to the 20 th and 21 st Sessions of the IOC Coordination Group for Pacific Tsunami	14
10	5.1	Main Lines of Action for the Draft Programme and Budget for 2008–2009	15

Resolution EC-XXXIX.1

IOC DRAFT MEDIUM-TERM STRATEGY (2008–2013)

The IOC Executive Council,

Noting the need to contribute to the Medium-term Strategy of UNESCO for 2008–2013 (34 C/4),

Recalling IOC Resolution XXIII-16 and the work of the inter-sessional Working Group on the IOC Medium-term Strategy (2008–2013),

Agrees on the text annexed to this resolution as the basis for the development of the IOC Medium-term Strategy (2008–2013);

Instructs the IOC Executive Secretary to use the annexed text in the contribution from the IOC to the UNESCO Medium-term Strategy document;

Also instructs the IOC Executive Secretary to transmit the annexed text to the IOC Member States for their information and comments;

Invites Member States to promote the high-level objectives of the annexed text:

- (i) in their response to the UNESCO Questionnaire on the Draft Medium-term Strategy for 2008–2013 (34 C/4) and Draft Programme and Budget for 2008–2009 (34 C/5);
- (ii) in the Executive Board of UNESCO at its 175th and 176th sessions and in the General Conference of UNESCO at its 34th session.

Annex to Resolution EC-XXXIX.1

Preamble

The world community faces growing challenges arising from climate variability and change, marine environmental degradation and pollution, biodiversity losses, and natural hazards. How we respond to these global issues, while facing the increasingly complex challenges of sustainable development and ecosystems-based management will dominate the work of the IOC.

While the future state of the oceans remains uncertain, we need to ensure that society and policymakers are better informed of the impact of oceans on humankind and vice versa. The IOC programmes provide the necessary data, information and knowledge to contribute to services needed to effectively address ocean issues. For example, there is an increasing demand for improving climate and hazard forecasts at the local level; to do so, requires data from larger scales, and IOC's network of ocean observations is fundamental to this effort.

IOC outreach and public awareness activities will be underscored by the IOC 50th Anniversary in 2010.

In accordance with the mission of IOC, as established in the IOC Statutes, noting the role of IOC as the competent body and focal point for ocean matters in the UN system, responding concretely in our mandated areas of activity to the Johannesburg Plan of Action, the UN Millennium Development Goals, and acting in conformity with international law, including relevant UN

Conventions, IOC identifies the following objectives and associated activities for the 2008–2013 Medium-term Strategy of UNESCO (34 C/4):

High-Level Objectives and Associated Activities:

Through the promotion and intergovernmental coordination of ocean sciences, services, observations, data management and related activities, including transfer of technology and capacity-building, at regional and global levels, and with due consideration to integrated ocean and coastal zone management, in line with UNESCO's priority for Africa, IOC will address:

1. Prevention and reduction of the impacts of natural hazards

- a. Promote integrated and sustained monitoring and warning systems for coastal and oceanic natural hazards (for example hurricane, tsunami, storm surge), in close coordination with other relevant intergovernmental organizations, where appropriate, using enhanced coastal and ocean networks, including education and training activities.
- b. Educate communities at risk with respect to natural-hazard impact prevention, preparedness and mitigation measures.

2. Mitigation of the impacts and adaptation to climate change and variability

- a. Increase the understanding of the ocean's role in climate variability and climate change.
- b. Contribute to the better prediction of climate through ocean observation and process studies, at regional and global scales.
- c. Increase the understanding of the impacts of climate change and variability on marine ecosystems and their living resources.

3. Safeguarding the health of ocean ecosystems

- a. Actively contribute to the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects.
- b. Further develop the research and monitoring required for the prevention of marine environment degradation, and the maintenance of biodiversity and the sustainable use of marine habitats.
- c. Identify and develop the capacity-building necessary for maintenance of healthy ocean ecosystems focusing on the regional needs.

4. Management procedures and policies leading to the sustainability of coastal and ocean environment and resources

- a. Enhance regional cooperation and involvement of the Member States through capacity-building and transfer of technology.
- b. Facilitate science related to ocean and coastal resource management.
- c. Enhance development and implementation of decision-support tools that improve integrated ocean and coastal management.

Required funding (2006–2007): not applicable

Resolution EC-XXXIX.2

**SECOND SESSION OF THE JOINT WMO–IOC TECHNICAL COMMISSION
FOR OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM-II)**

The Executive Council,

Having considered the Abridged Final Report (WMO-MO-995, 2006), with Resolutions and Recommendations, of the Second Session of the Joint WMO–IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM-II),

Endorses the Abridged Final Report and the resolutions therein;

Decides to take action on the following recommendations:

Recommendation 1 (JCOMM-II) – Guide to storm-surge forecasting

Instructs the IOC Executive Secretary, in coordination with the Secretary-General of WMO, to arrange for the preparation of the Guide, and for its publication in printed and electronic form in the WMO Manuals and Guides series;

Recommendation 2 (JCOMM-II) – The development of operational oceanographic products and services under JCOMM

Instructs the IOC Executive Secretary, in coordination with the Secretary-General of WMO, to provide support, if necessary, for the implementation of the Recommendation, within available resources;

Recommendation 3 (JCOMM-II) – Consumables for ship-based observations

- (i) **Urges** Member States to take the actions detailed in the Recommendation in support of the full implementation and maintenance of the ocean observing system;
- (ii) **Instructs** the IOC Executive Secretary, in coordination with the Secretary-General of WMO, to support the implementation of the agreed plan for the bulk purchase and supply of consumables for ship-based observations, through the establishment of a special trust fund for this purpose;

Recommendation 4 (JCOMM-II) – New terms of reference for JCOMMOPS

Urges Member States to commit through the sponsoring organizations (IOC, WMO) the resources required to support JCOMMOPS;

Recommendation 5 (JCOMM-II) – IOC Project Office for IODE

Urges Member States to support the Project Office and to second suitably qualified experts on a short- or long-term basis to facilitate its activities;

Recommendation 6 (JCOMM-II) – JCOMM data management strategy

Instructs the IOC Executive Secretary, in coordination with the Secretary-General of WMO, to facilitate the preparation of the strategy detailed in the Recommendation;

Recommendation 7 (JCOMM-II) – Complementary guidelines for NAVTEX broadcasts

Urges Member States that have responsibilities for forecast, and warning preparation and broadcast, through the international NAVTEX Service, to take the actions detailed in the Recommendation;

Recommendation 8 (JCOMM-II) – Guidelines for sea-ice charts

Urges Member States that issue and/or relay sea-ice information, to take the actions detailed in the Recommendation;

Recommendation 12 (JCOMM-II) – JCOMM support for marine multi-hazard warning systems, including tsunamis

Instructs the IOC Executive Secretary, in coordination with the Secretary-General of WMO, and **urges** Member States, to provide the necessary support to JCOMM to enable the Joint Technical Commission to implement its plan of action for contributing to marine multi-hazard warning systems;

Recommendation 13 (JCOMM-II) – The Global Earth Observation System of Systems (GEOSS)

- (i) **Instructs** the IOC Executive Secretary, in coordination with the Secretary-General of WMO and with the assistance of the co-presidents of JCOMM, and the Chair and Vice-Chairs of I-GOOS, to keep GEO fully informed of activities in operational oceanography and marine meteorology, and of JCOMM's capacity to provide effective technical leadership in the coordination of the global ocean observation network;
- (ii) **Invites** GEO to fully utilize the potential contribution of JCOMM, as a Joint Technical Commission of WMO and IOC, in the delivery of the GEOSS 10-year Implementation Plan.

Required funding (2006–2007):

UNESCO Regular Programme Budget available as per IOC Resolution XXIII-16 of the 23 rd Session of the Assembly (including overheads)	US\$ 189,831
Extra-budgetary funds (to be raised)	US\$ 160,000

Resolution EC-XXXIX.3

THE ROLE OF UNESCO/IOC CHAIRS IN CAPACITY-BUILDING INITIATIVES

The Executive Council,

Recognizing the considerable advancement in training and sharing of information in various fields of marine science as a result of the support from Member States that has complemented limited IOC resources,

Noting the important role played by the UNESCO/IOC Chairs in this process, including those Chairs created following Resolutions EC-XXXVII.9 and EC-XXXVII.10,

Noting the positive results achieved in scientific training by the Training-Through-Research Programme (TTR),

Decides to:

- (i) **promote** the establishment of additional Chairs under the UNESCO Chairs Programme, addressing IOC-related activities;
- (ii) **invite** existing and future Chairs to use the UNESCO University Twinning Programme (UNITWIN) to improve cooperation among universities;

Instructs the IOC Executive Secretary to facilitate communication among Chairs and IOC bodies and programmes.

Required funding:

None from UNESCO Regular Programme Budget

Extra-budgetary funds to be raised from Member States

Resolution EC-XXXIX.4

**FOURTH SESSION OF THE IOC REGIONAL COMMITTEE
FOR THE CENTRAL INDIAN OCEAN (IOCINDIO)**

The Executive Council,

Acknowledging the substantial benefits to Member States from IOC programme and project implementation in the central Indian Ocean region during the inter-sessional period 2000–2005,

Having considered the Executive Summary Report of the Fourth Session of IOCINDIO, including the two recommendations therein, dealing with the national and regional coordination mechanism and its programme of work and budget 2006–2008,

Noting Document IOC-XXIII/2 Annex 5 on ‘Enhancing the Effectiveness of Regional Cooperation in Marine Science and Technology and the Role of the IOC Regional Subsidiary Bodies’ presented to the Assembly at its 23rd Session,

Expresses its gratitude and appreciation to the Government of Sri Lanka for hosting the 4th Session of the IOC Regional Committee for the Central Indian Ocean, in Colombo, 8-10 December 2005;

Endorses the IOCINDIO-IV Executive Summary Report and its two recommendations;

Recognizes that available funds in the Approved IOC Programme and Budget for 2006–2007 are not sufficient to ensure the proper implementation of the IOCINDIO Regional Work Plan;

Urges Member States and donor agencies to participate actively in, and to provide extra-budgetary funds and other kinds of support for the implementation of the IOCINDIO Regional Work Plan;

Invites other international and regional organizations, programmes and projects to continue and/or to renew their commitments to, and partnerships with, IOCINDIO.

Required funding (2006–2007):

UNESCO Regular Programme Budget as available in MLA 3
(Regional Activities of IOC Resolution XXIII-16)

Extra-budgetary funds to be raised US\$ 1,430,000

Resolution EC-XXXIX.5

**NINTH SESSION OF IOC SUB-COMMISSION FOR THE CARIBBEAN
AND ADJACENT REGIONS (IOCARIBE)**

The Executive Council,

Acknowledging:

- (i) the successful implementation of the IOC Programmes in the IOCARIBE Region during the IOCARIBE inter-sessional period 2004–2006,
- (ii) the positive development in the implementation of the Caribbean Large Marine Ecosystem (CLME) Project and the progress of the “Know-Why Network”,

Noting with appreciation the collaboration among the Member States, UN Agencies, governmental and non-governmental organizations in the implementation of IOCARIBE activities in the region,

Expresses:

- (i) its gratitude to the Government of Colombia for hosting the Secretariat of the IOCARIBE Sub-Commission and its continuous support for IOCARIBE since the establishment of the Secretariat in Cartagena in 1986;
- (ii) its appreciation to the Government of Colombia for hosting the 9th Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE-IX) in Cartagena, 19–22 April 2006;

Endorses the Executive Summary of IOCARIBE-IX and its Recommendations;

Decides to take the following action:

- (i) **endorses** the MoU between the Sub-Commission and the Centre for Resource Management and Environmental Studies (CERMES) of the University of the West Indies, Barbados, on the establishment of the Caribbean Large Marine Ecosystem (CLME) Project Office at CERMES, in Barbados;
- (ii) **instructs** the IOC Executive Secretary to implement the IOCARIBE-IX Recommendations, including the Sub-Commission’s Work Plan for 2006–2008 in the light of the present and future budgetary possibilities of the Commission;

Urges Member States and donor agencies:

- (i) to continue participating actively in the implementation of the IOCARIBE programmes and projects, through provision of extrabudgetary funds and/or expertise;
- (ii) to further develop and strengthen capacity-building initiatives in the region, following the priorities already identified by the Sub-Commission and by the IOC Assembly; and
- (iii) to provide additional resources and technical staff to the IOCARIBE Secretariat in order to strengthen its operations;

Invites other international and regional organizations and programmes to continue their collaboration in the implementation of IOCARIBE programmes and projects.

Required funding (2006–2007, 2008):

UNESCO Regular Programme Budget (2006–2007) as identified in MLA 3
(Regional Activities of IOC Resolution XXIII-16)

Extra-budgetary funds committed in 2006–2007	US\$ 3,631,000
Additional Extra-budgetary funds to be raised in 2007 and 2008	US\$ 7,820,000

Resolution EC-XXXIX.6

**SIXTH SESSION OF IOC REGIONAL COMMITTEE
FOR THE WESTERN INDIAN OCEAN (IOCWIO-VI)**

The Executive Council,

Considering the progress in the implementation of the IOCWIO-V programme in the period 2002–2005,

Noting with satisfaction the performance of the IOCWIO Project Office in facilitating and co-ordinating the implementation of the IOCWIO-V Work Plan, and the collaboration initiated with other organizations and programmes, such as UNEP, NEPAD/COSMAR, WIOMSA and ICPAC,

Noting that experts from the IOC, WMO and ISDR have undertaken national assessment missions in 2005 to Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, and Tanzania, in order to: inform stakeholders on the requirements for the establishment and operation of a regional tsunami warning and mitigation system; assess available resources; and identify capacity-building needs,

Acknowledging with appreciation the support provided by Member States, donors and other organizations for the implementation of IOCWIO during the inter-sessional period, especially the Government of Flanders, Belgium, for their continued support through the ODINAFRICA project,

Recognizing the need to focus the work of the Regional Committee on the development and strengthening of capacity in the observation and monitoring of the oceans and coastal areas, as well as in the analysis and interpretation of the available data and information, to enable their use in the sustainable management of the marine environment and resources,

Expressing its appreciation to the Government of Mozambique for having hosted the 6th Session of the Regional Committee, in Maputo, 2–4 November 2005,

Endorses the Executive Summary of the 6th Session of the Regional Committee for the Western Indian Ocean including its four Recommendations, and in particular:

- (i) The establishment of a Regional Group of Experts on Ocean Dynamics and Climate to stimulate oceanographic research through the participation of western Indian Ocean scientists in IOC global programmes;
- (ii) The development of capacity in all appropriate aspects of tsunami warning and mitigation, including modelling and installation of the necessary seismic and oceanographic sensors;
- (iii) The establishment of national structures for detection, warning and preparedness, based on the national assessment reports;
- (iv) The organization of Leadership workshops, and the assessment and development of capacity in the application of modelling, remote sensing, GIS and other appropriate emerging technologies in the management of the coastal environment;

Endorses also the IOCWIO-VI Work Plan;

Instructs the Executive Secretary to explore all possible ways to ensure effective implementation in the light of the present and future budgetary possibilities of the Commission;

Urges Member States and international agencies cooperating with the Commission to participate actively in the implementation of the IOCWIO-VI Work Plan through provision of extra-budgetary funds and/or expertise.

Required funding (2006–2007):

UNESCO Regular Programme Budget (2006–2007) as identified in MLA 3
(Regional Activities of IOC Resolution XXIII-16)

Extra-budgetary funds available	US\$ 643,000
Extra-budgetary funds to be raised	US\$ 1,105,000

Resolution EC-XXXIX.7

**SIXTH MEETING OF THE IOC ADVISORY BODY OF EXPERTS
ON THE LAW OF THE SEA (IOC/ABE-LOS VI)**

The Executive Council,

Expressing its appreciation of the progress made by the IOC Advisory Body of Experts on the Law of the Sea at its 6th Meeting (Málaga, Spain, 3–7 April 2006),

Bearing in mind the UNGA Resolution A/RES/60/30, paragraphs 14, 87 and 88, in which the United Nations General Assembly acknowledged the work done by the Intergovernmental Oceanographic Commission of UNESCO through its Advisory Body of Experts on the Law of the Sea,

Recalling IOC Resolutions XXIII-8 and XXIII-9, EC-XXXVII.8 and XXII-12, which specified the mandate of IOC/ABE-LOS with respect to its work on:

- (i) the practice of Member States with respect to Parts XIII and XIV of UNCLOS,
- (ii) the dissemination and implementation of the “Criteria and Guidelines on the Transfer of Marine Technology”,
- (iii) the Procedure for the application of Article 247 of the United Nations Convention on the Law of the Sea by the Intergovernmental Oceanographic Commission of UNESCO,
- (iv) the IOC legal framework that is applicable to the collection of oceanographic data within the context of UNCLOS,

Requests the IOC/ABE-LOS to pursue its work on the “IOC legal framework for the collection of oceanographic data within the context of UNCLOS” in close cooperation with I-GOOS and UN/OLA/DOALOS;

Endorses the IOC/ABE-LOS VI Report and Recommendations;

Decides to:

- (i) **Instruct** the IOC Executive Secretary to explore actively the possibility to implement “the Procedure for the application of article 247 of UNCLOS by the IOC” for appropriate scientific programmes and systems that the IOC coordinates or sponsors;
- (ii) **Request** the sub-group on the IOC legal framework for the collection of oceanographic data within the context of UNCLOS to continue its work, and **encourage** it to come up with consensual text as soon as practicable, on the basis of comments and observations made when discussing the matter at IOC/ABE-LOS V and VI; such work is to be carried out in close cooperation with UN/OLA/DOALOS and in consultation with I-GOOS;
- (iii) **Urge** increased participation of the members of IOC/ABE-LOS in their inter-sessional work;

Urges Member States to increase financial support for the organization of the 7th Meeting of the IOC Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS VII), in addition to the regular programme funds already allocated.

Required funding (2006–2007):

UNESCO Regular Programme Budget as available in MLA 3
(Ocean Governance & UNCLOS) of IOC Resolution XXIII-16
for the organization of IOC/ABE-LOS VII Meeting in 2007

US\$ 17,000

Resolution EC-XXXIX.8

**INTERGOVERNMENTAL COORDINATION GROUP
FOR THE PACIFIC TSUNAMI WARNING AND MITIGATION SYSTEM**

The Executive Council,

Noting:

- (i) Resolution XXIII-12, Resolution XXIII-13 and Resolution XXIII-14, establishing, respectively, the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), the Intergovernmental Coordination Group for Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions, and the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connecting Seas;
- (ii) the report of the 20th session of the International Coordination Group for the Tsunami Warning System in the Pacific (ITSU-XX) Viña del Mar, Chile, October 2005), IOC/ITSU-XX/3;

Recalling that:

- (i) the Tsunami Warning System in the Pacific (ITSU) provides a comprehensive tsunami warning and mitigation service which covers the Pacific Ocean and all adjacent seas,
- (ii) the ITSU is a coordinated network of regional, sub-regional and national systems and capacities,
- (iii) the International Tsunami Information Centre (ITIC) was established by the IOC through Resolution IV-6 (1965) and hosted by the United States of America in Honolulu, Hawaii,
- (iv) the North West Pacific Tsunami Advisory Centre (NWPTAC), hosted by Japan in Tokyo, was established in 2005,

Recognizing:

- (i) the long experience of the ITIC as the primary provider of information and expertise for technology transfer, training and capacity-building for the Tsunami Warning System in the Pacific, in conjunction with the IOC Secretariat,
- (ii) the long experience of the Richard H. Hagemeyer Pacific Tsunami Warning Centre (PTWC) in Hawaii as the primary operational centre for the Tsunami Warning and Mitigation System in the Pacific,

Acknowledging with appreciation the continuing strong support of Chile, Japan and the United States of America for the operation of NWPTAC, the PTWC, the West Coast/Alaska Tsunami Warning Centre (ATWC) and ITIC,

Recalling the IOC commitment to an open, free and unrestricted sharing of tsunami-relevant real-time observational data in accordance with the UNESCO/IOC Oceanographic Data Exchange Policy and without prejudice to the sovereignty of Member States,

Stressing that all Member States should make every endeavour to exchange with other Member States:

- (i) seismic, sea-level and other data relevant to tsunamigenic events in or near real time,
- (ii) national assessments and warnings of tsunamigenic events and of tsunamis in a timely manner,

Emphasizing the importance of the role of the communication media in reporting this information responsibly,

Expressing its appreciation to the Secretariat of the UN International Strategy for Disaster Reduction (ISDR) for its guidance and support, and to the World Meteorological Organization (WMO) for contributing its infrastructure and technical support,

Decides:

- (i) to rename ITSU to be the Pacific Tsunami Warning and Mitigation System (PTWS);
- (ii) to establish an Intergovernmental Coordination Group for the PTWS, with terms of reference as given in the Annex to this resolution;
- (iii) that the IOC shall provide the Secretariat of the ICG/PTWS;
- (iv) that ITIC will continue to act as the primary provider of information and expertise for technology transfer, training and capacity-building for the PTWS;

Requests NWPTAC and PTWC to continue to provide interim tsunami advisory information for the South China Sea region, at least until the next meeting of PTWS;

Reaffirms that PTWS should be part of a global network of warning and mitigation systems for tsunami and other ocean-related hazards;

Welcomes and accepts the generous offer of the United States of America to continue to support the ITIC and **instructs** the IOC Executive Secretary to establish ITIC as a programme office of IOC;

Agrees that, to facilitate durability, the Pacific Tsunami Warning and Mitigation System should continue to utilize or build on, where possible, existing organizations and institutions and complement existing warning frameworks, within a multi-hazard framework where appropriate;

Invites all Member States and other countries, international and regional organizations to provide financial, technical and other kinds of assistance for the PTWS, including voluntary contributions to the IOC Tsunami Trust Fund, in order to assist the Commission in the effective provision of Secretariat services for the ICG/PTWS;

Further invites Member States, including Member States of the PTWS, to encourage countries in the Pacific that are not already participating in the PTWS, to join the IOC and PTWS, and in

doing so, Member States should clarify to them the benefits that accrue from membership of the PTWS, which does not require any set annual financial contribution;

Invites WMO and ISDR to coordinate appropriately with IOC, to ensure that tsunami warning and mitigation activities are mutually consistent.

Required funding (2006–2007):

UNESCO Regular Programme Budget as available within the amount identified in MLA 2 (ITSU) of IOC Resolution XXIII-16

Annex to Resolution EC-XXXIX.8

**Terms of Reference of the Intergovernmental Coordination Group
for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)**

The ICG will be established as a subsidiary body of the IOC and will report to, and seek guidance from, the IOC Assembly.

Objectives:

1. To identify the needs and coordinate the activities of the PTWS;
2. To organize and facilitate as appropriate the exchange of seismic, sea-level and other data in or near real time and information required for the interoperability of the PTWS;
3. To support the national tsunami warning and mitigation services;
4. To promote the sharing of experience and expertise related to tsunami warning and mitigation for the Pacific Ocean and adjacent seas;
5. To promote tsunami research;
6. To promote the establishment and further development of national tsunami warning and mitigation capacities in accordance with standard protocols and methods;
7. To develop, adopt and monitor implementation of work plans of the PTWS, and to identify required resources;
8. To promote implementation of relevant capacity-building, resilience-building and emergency management, including high levels of public awareness;
9. To liaise and coordinate with the ICGs for other tsunami warning and mitigation systems and to facilitate best practices;
10. To liaise with other relevant organizations, programmes and projects;
11. To promote the implementation of the PTWS within a multi-hazard framework;
12. To develop and promote best practices in tsunami warning and mitigation;
13. To keep under constant scrutiny the status of the system and how it satisfies the needs;

14. To arrange for liaison among the various national contact points and tsunami warning centres;
15. To maintain a current list of operational focal points and facilities for the PTWS and make it available on request to all Member States;
16. To maintain a list of those countries that are members of PTWS and a list of those countries that are not members, and make this available on the IOC PTWS website;
17. To initiate and support training activities to enhance and enrich tsunami warning and mitigation in the Pacific Ocean and adjacent seas.

Membership of the ICG/PTWS:

- Member States of the IOC within and bordering the Pacific Ocean and adjacent seas;
- Observers from other IOC Member States.
- Invited observers from other organizations (including NGOs), programmes and projects, in accordance with the IOC rules and procedures.

Officers of the ICG/PTWS

- A Chairperson and two Vice-Chairpersons, who will be elected in accordance with the Statutes and Rules of Procedure of the IOC,
- Past Chairperson,
- Director of the PTWC,
- Director and Associate Director of the ITIC.

Resolution EC-XXXIX.9

**FOLLOW-UP TO THE TWENTIETH AND TWENTY-FIRST SESSIONS OF THE
INTERGOVERNMENTAL COORDINATION GROUP FOR THE PACIFIC TSUNAMI
WARNING AND MITIGATION SYSTEM (ICG/PTWS)**

The Executive Council,

Noting the summary report of the International Coordination Group for the Tsunami Warning System in the Pacific (ITSU-XX) (Viña del Mar, Chile, 3–7 October 2005), and the Executive Summary Report of the Twenty-first Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS-XXI) (Melbourne, 1–5 May 2006),

Expresses its appreciation to Chile and Australia, respectively, for hosting the meetings;

Endorses the Summary Reports, Resolutions and Recommendations of ITSU-XX and ICG/PTWS-XXI;

Decides to postpone the planned ITSU Programme Review, originally focussed solely on the Pacific, until such time as a full review of the IOC tsunami programme is carried out;

Notes with satisfaction the successful conduct of the Exercise Pacific Wave 06;

Expresses its appreciation to Australia, Japan and the USA for their leadership in the organization and conduct of Exercise Pacific Wave 06.

Required funding (2006–2007)

UNESCO Regular Programme Budget as available within the amount identified in MLA 2 (ITSU) of IOC Resolution XXIII-16

Resolution EC-XXXIX.10

**MAIN LINES OF ACTION FOR THE DRAFT PROGRAMME AND BUDGET
FOR 2008–2009**

The Executive Council,

Noting Articles 1.2, 10.1 and 10.4 of the IOC Statutes,

Recalling:

- (i) the emphasis placed in Resolutions A/RES/56/12 and A/RES/57/141 on Oceans and the Law of the Sea adopted, respectively, by the 56th and the 57th Sessions of the United Nations General Assembly, on the role of the IOC as a focal point for developing appropriate interactions in the field of marine science,
- (ii) the participation of the IOC in the UN/OCHA Flash Appeal: Indian Ocean Earthquake – Tsunami 2005,

Stressing the unique role of the IOC as the competent international organization dealing with ocean science, services and capacity-building at global and regional levels, and also acting as the ocean arm of UNESCO,

Noting with appreciation that:

- (i) the IOC has benefited in the past from the allocation by UNESCO of an 'incompressible' budget for its established level of Regular Budget-supported activities and the creation in the 33 C/5 of an additional professional post for the Ocean Observations and Services Section, and
- (ii) the increasing interest in IOC activities and especially its important role in the work related to the establishment of the Tsunami Warning System around the globe, has attracted substantial supplementary support from Member States, notably through contributions to the IOC Special Account,

Reiterating its concern that, as a result of the increasing responsibilities of the IOC in global and regional ocean issues, the resources available to IOC will remain below the level needed to sustain the work of the Commission, notwithstanding the significant extra-budgetary contributions,

Noting the deployment of resources for the period 2004–2005 as detailed in the following table and, in particular the unplanned additional funding to support tsunami-related activities,

Summary of IOC Income in 2004–2005 (in US\$)

		MLA 1	MLA 2	MLA 3	ITSU/TWS	MLA 4	MLA 5	Non-earmarked & interest	Total
A	Regular Budget/operating	885,000	1,340,000	397,000	98,000	854,000	1,169,900	0	4,743,900
A	Regular Budget/staff	733,328	1,113,572	518,956	0	918,600	467,545	0	3,752,000
B	Special Account/operating	854,027	1,119,367	195,447	128,259	346,654	450,287	309,714	3,403,755
B	Special Account/staff	370,660	433,821	0	0	0	0	0	804,481
C	Specific Projects/operating & staff	1,928,355	591,675	2,570,909	6,384,775	0	1,184,830	0	12,660,545
	TOTAL	4,771,370	4,598,435	3,682,312	6,611,034	2,119,254	3,272,562	309,714	25,364,681

PART A

Recalling IOC Resolution XXIII-16 ‘IOC Programme and Budget for 2006–2007’ and the budget allocation table contained therein,

Noting:

- (i) the shortfall in funding for the post in the IOC/IODE office in Ostend – \$120,000 identified in IOC Resolution XXIII-16 under MLA 2 (IODC Ostend Office Staff), while \$220,000 is required to cover full cost of the post,
- (ii) the uncertainty about the source of Regular Budget support for WCRP,

Noting that the regular reports on the financial status of the IOC Budget execution do not fully cover the budget available to the Secretariat, in particular finances managed through means other than the UNESCO system, and that the contributions of, and costs to, the Secretariat from various activities are often not revealed in such reports,

Confirms that the budget for 2004–2005 has been executed in accordance with the approved Programme and Budget 2004–2005;

Instructs the IOC Executive Secretary

- (i) to fully support the Ostend post from within the Regular Budget funds available to support the Main Lines of Action for 2006–2007, and to source the IOC contribution to the WCRP from the \$50,000 committed under MLA 1 (Oceans and Climate) with the remainder to come from MLA 3;

- (ii) to explore the ways of providing a more complete picture of the manner in which the work of the Commission is supported, including indirect contributions that do not enter the budgetary flow of the IOC, both financial and in-kind;
- (iii) working with the Vice-Chairperson responsible for budget matters, to initiate a study on a more comprehensive and integrated approach to budget and programme matters, including a framework and set of guidelines and principles for collaborative activities; the framework should include definition of (a) the scope of the activities (the nature of the investment), (b) field(s) of activity relative to the MLAs of IOC and their sub-objectives, (c) the roles, functions, and responsibilities of participants, including the IOC Secretariat, and (d) budget details – a profile of the resources at global and regional levels;
- (iv) to invite IOC Member States and Major Subsidiary Bodies to suggest mechanisms to make the funding system of the Commission more sustainable;
- (v) taking into account the budget advice provided in this Resolution, to report to the IOC Assembly, at its 24th Session, on the adjustments to and execution of the 2006–2007 Budget in line with such advice;

PART B

Recognizing the value of demonstrating good management practices covering all the activities of the Commission,

Further instructs the IOC Executive Secretary to establish a pilot project for a system of IOC performance metrics to be used regularly for the activities at both global and regional levels, and to report on the outcomes to the Assembly at its 24th Session;

Calls on Member States to provide expert assistance to the Secretariat in order to develop these performance metrics, and **accepts with appreciation** the offer of assistance by the United States of America in this regard;

PART C

Noting the mandate of the ad hoc open-ended working group established by IOC Resolution XXIII-16,

Recommends that the budget for the biennium 2008–2009 be focused on the programme strategic areas defined in Resolution EC-XXXIX.1 'IOC Medium-term Strategy for 2008–2013',

- Prevention and reduction of the impacts of natural hazards;
- Mitigation of the impacts of, and adaptation to, climate change and variability;
- Safeguarding the health of oceans ecosystems;
- Management procedures and policies leading to the sustainability of coastal and ocean environment and resources;

and be based upon three main lines of action:

- (i) Main Line of Action 1: The science of climate and climate change and of integrated ocean and coastal-zone management, including natural hazards;

- (ii) Main Line of Action 2: The coordination of activities in ocean observations, data management and ocean services;
- (iii) Main Line of Action 3: Capacity-building, transfer of technology and improved ocean governance arrangements, at regional and global levels;

Urges:

- (i) IOC Member States also Member States of UNESCO to actively support the IOC programme and budget proposals when the Draft 34 C/5 is being considered by the UNESCO Executive Board and the General Conference, and in particular to invite the UNESCO Governing Bodies and the Director-General to consider as a high priority the possibilities of further increasing the number of IOC staff;
- (ii) IOC Member States to continue and increase their support to the IOC through direct and in-kind contributions to the 2006–2007 activities and to consider complementary arrangements in accordance with Article 10.4 of the IOC Statutes.

Required funding (2006–2007): not applicable

ANNEX III

STATEMENTS AND ADDRESSES

A. Address by

Mr Koïchiro Matsuura
Director-General of the United Nations Educational, Scientific and Cultural Organization
(UNESCO)

28 June 2006

Mr Chairman,

Distinguished Members of the IOC Executive Council,

Ladies and Gentleman,

It gives me great pleasure to meet with you once again during this 39th session of the IOC Executive Council. I am happy to learn that you have had a successful and productive meeting, and look forward to learning of its outcomes in more detail.

In my closing remarks this morning, I wish first of all to draw attention to the success that UNESCO has had, through the IOC, in developing a tsunami early warning system, first in the Pacific Ocean, then more recently in the Indian Ocean, and now globally. I would also like to share with you my views on some of the challenges that UNESCO and the UN are facing in this area, and on the outlook for the future as UNESCO prepares its Medium-term Strategy for 2008–2013.

On 26 December 2004 we were confronted with an unprecedented catastrophe: the most destructive tsunami recorded in history. The international community reacted with an equally unprecedented outpouring of solidarity, goodwill and material aid. The strength of the earthquake that gave rise to this tsunami was also exceptional, the most powerful recorded since 1964. The associated rupture of the earth's crust at the bottom of the sea extended for over 1,200 kilometres. It will be many years before the affected countries recover the hundreds of thousands of livelihoods lost to the disaster.

Well before December 2004, UNESCO had been promoting the need for a global strategy to provide the whole world with protection against tsunamis. In the immediate aftermath of the Indian Ocean tragedy—and in parallel to the suggestions that Dr Pugh, the IOC Chairman, was making to Dr Zakher, the Chair of IOCINDIO—I again drew attention to the urgent need of developing a worldwide early warning system.

On 13 January 2005, just two weeks after the Indian Ocean disaster, I made the following announcement in an address to the Inter-Regional Meeting to Review the Implementation of the Barbados Plan of Action for Small Island Developing States—so called Barbados + 10, held in Port Louis, Mauritius:

“UNESCO has been advocating in favour of an early warning system in the Indian Ocean and other regions of the world, since the risk of tsunamis exists in varying degrees in all oceans and coastal seas. This is why UNESCO is now calling for the

establishment of early warning systems not only in the Indian Ocean but also in the Caribbean and the Mediterranean, and for their reinforcement in the South-West Pacific. Indeed, we are actively promoting the setting up of a global early warning system for tsunamis that would provide an integrated international framework for establishing regional systems and responsible national centres and facilities.”

And then, signalling the way forward, I announced that:

“We will first convene in early March in Paris a technical meeting of experts from the interested Member States and relevant regional and international organizations in order to harmonize different early warning initiatives for the Indian Ocean and define the scope and characteristics of a global tsunami warning system, and establish a single framework. [...] UNESCO will, in collaboration with ISDR, WMO and other partners, call an Indian Ocean Tsunami Regional Conference at which Member States would hopefully agree on their roles in the regional tsunami warning system.”

We can be justly proud of having done all this and much more. The timetable that was established for the implementation of the Indian Ocean Tsunami Warning and Mitigation System (IOTWS) has been met. We had planned to have the system up and running, even if not finalized, by June 2006—and we have. Discussions this week within the IOC Executive Council suggest that we are also fully on track to have the Global Tsunami Warning System operational by June 2007.

The Indian Ocean tsunami highlighted the strategic importance of the IOC, and I am extremely satisfied with the role that the Commission has played in leading the response to the tragedy. This speaks highly of the maturity of the IOC and its clarity of purpose, and also reflects the level of support that governments have given to its programmes.

In this process, the skills and competences of UNESCO and the IOC have been fully recognized within the UN system, and beyond. If, before the tragedy, few knew about UNESCO's strong involvement in ocean sciences and services, the world was genuinely surprised when they learned that the Organization had established a Tsunami Warning System for the Pacific Ocean as early as 1965.

UNESCO's work in establishing tsunami-warning systems is now widely applauded, not least by the Secretary-General of the United Nations, Kofi Annan. Mr Annan has on many occasions publicly congratulated UNESCO on its leadership in developing a global tsunami warning and mitigation system. This work provides visibility not only for UNESCO but for the UN as a whole, and will form an integral component of the UN-led global multi-hazard warning system.

Ladies and Gentlemen,

An interim warning system for the Indian Ocean started to operate on 1 April 2005, with 14 Member States. Today, the system has been extended to cover the entire Indian Ocean region. Relying exclusively on seismic data, there are—as of 1 December 2005—26 (out of a possible 28) national tsunami information centres. These are capable of receiving and distributing tsunami advisories around the clock, from centres in Tokyo (the Japan Meteorological Agency) and Hawaii (the Pacific Tsunami Warning Centre).

In one and a half years, we have been able to establish an initial warning system that incorporates sea-level and deep-sea pressure measurements in the region.

This initial tsunami warning system is now operational, composed of an improved seismographic network (25 new stations being deployed and linked in real time to centres of analysis) and a real-time sea-level network (23 new stations). There are also three Deep-ocean Assessment and Reporting of Tsunamis (DART) sensors—one deployed by Malaysia and two by Germany. To this we should further add the data from seismographic stations contributed by the Commission for the Nuclear-Test Ban Treaty Organization (CTBTO).

By the end of July 2006, this initial system will be capable for the first time in the Indian Ocean of the following functions:

- improved and faster detection of strong, tsunamigenic earthquakes;
- increased precision in the location of the epi- and hypocentres of earthquakes, enabling the accurate application of tsunami warning protocols;
- confirmation of the presence of a tsunami wave in the ocean after a strong earthquake;
- issuing a “tsunami watch”, “regional tsunami watch” or a “global tsunami ocean warning”; and
- calling off “tsunami watches” and “regional tsunami watches”.

Our progress, as you may remark, has been significant. However, this successful work is far from being finished. The first national plans, which will eventually reinforce this initial system, have delivery dates of 2007 and 2008. The new systems need to be tested in real situations. During this last year, nature has given us ample opportunities to detect possible weak points. New communication tools—like small messaging services (SMS)—are vulnerable to saturation when they are most needed. New siren systems are heard on one side of a bay but not on the other. New seismographic networks cannot depend exclusively on the automatic determination of epicentres; they need to be overseen in interactive mode. In sum: greater capacity-building is needed across the board.

Ladies and Gentlemen,

I have noted with satisfaction that during 2005 many countries took immediate action to protect their populations from tsunami hazards. Many others started to prepare national plans to improve the protection of coastal regions. In the final analysis, success in implementing an effective end-to-end tsunami warning and mitigation system will always depend on good governance at the country level and on long-term support from national authorities.

The first to act were the affected nations in the Indian Ocean: Indonesia, Thailand, India, Australia, Malaysia, Sri Lanka, Singapore, The Maldives and Mauritius. These countries have all started to build national detection networks and national tsunami centres. In fact, today we have 26 National Information Focal Points in the Indian Ocean.

These initiatives are not restricted to the Indian Ocean, however. The USA and Canada have joined hands to protect not only their Pacific Coasts, but also the Eastern Seaboard of both nations in the North-West Atlantic. For the USA, this effort extends to the Gulf of Mexico, Puerto Rico and the US Virgin Islands. Germany is supporting Indonesia, through a strong bi-

lateral agreement. France is active in the West Indian Ocean, and is leading work in the Mediterranean, together with Italy, Greece, Germany, Morocco, Algeria, Portugal and Spain.

All this is very encouraging. We are, however, still faced with two major challenges.

First, we need to ensure that everything that has been done to date—and, more importantly, all that needs to be done from now on—is seamlessly integrated into the internationally coordinated efforts under the governance provided by the IOC. We cannot afford the risk of having a disparate array of national systems, with little or no coordination. The open and free exchange of data, and the full interoperability of national systems, is absolutely crucial for success.

Second, we need to ensure that the investments in detection networks, essential for having the “upstream flow” of data needed to issue an early warning, are accompanied by a parallel long-term investment securing the “downstream flow” of information, from the warning centres to populations and communities at risk.

Here, we need to pay attention to the experience that the humanitarian and disaster communities have accumulated since the UN established the International Decade for Disaster Reduction in 1989. A timely, 100% accurate and precise warning will not provide any protection if people do not know how to respond to the emergency. Early warning is as much an issue of ‘soft’ organizational technology, communication and community-based systems, as it is of ‘hard’ science and technology, numerical modelling and instrumental networks.

In building detection networks, we can rely on international cooperation. In preparing people for emergency situations, and in securing the adoption of all the necessary mitigation measures, we must rely on national governments and national institutions. National governments must take responsibility for issuing warnings in their territories and for ensuring the downstream flow of information from the centre to the periphery. National governments are also responsible for putting in place and implementing the necessary awareness and emergency-preparedness plans and for securing their relentless implementation. This requires a high level of political will.

This is not to say that governments confront these tasks alone. The Indian Ocean situation furnishes many examples of actions taken at the community level, with the support of a wide variety of national and international organizations, many of them NGOs. But we must recognize that building national preparedness is the most difficult part of establishing early warning systems.

The architecture of the international tsunami warning system proposed by the IOC takes fully into account this double function. The system is composed of two different networks: the upstream detection network of instruments, and the downstream network of national tsunami centres, with at least one national centre in each participating nation.

In a minimal configuration, the national tsunami centre must have the operational capability of receiving warnings 24 hours a day, 7 days a week, and of disseminating these warnings both to the responsible authorities and to the general public. National tsunami centres must also be capable of defining national preparedness procedures and of putting in place national education and awareness plans.

In our experience, true ownership of such a system is achieved when national centres move away from this minimal configuration, and start to develop their own national detection networks and risk-assessment studies.

These developments take time and require sustained efforts at both the national and international levels. The United Nations, through several of its programmes and agencies, is implementing a long-term strategy, namely, the Hyogo Plan of Action. This Plan aims to halve by 2015 the global losses caused by natural disasters, and to make all of the world's hospitals and schools "disaster safe".

UNESCO's last Programme and Budget has reinforced the Organization's work on natural disasters. In our plans for the 34 C/5, as well as for UNESCO's new Medium-term Strategy, we should ensure that the close coordination between IOC and the natural disaster unit in the science sector is further strengthened. I have been informed that when discussing the IOC Medium-term Strategy—which has an impact on broader UNESCO processes—you have given serious consideration to re-shaping much of the programme, with the aim of building a stronger and more integrated Natural Hazard Line of Action. This would serve to link the tsunami effort with integrated coastal management, the IOC/IHO mapping programme and the development of GOOS. Furthermore, if we can engage closely with partners involved in implementing the 10-year plan for GEOSS, there are also opportunities for benefiting from the development of GEO.

In light of this attempt to better integrate our work on natural disasters, I would like to address one of the major challenges—and opportunities—that UNESCO faces in this area: that of exploiting the multisectoral nature of the Organization.

UNESCO's mission is to contribute to peace and security by promoting education, science, cultural exchange, and the open flow of information. Over time, our Organization has developed a complex matrix of disciplines, programmes and structures. Although UNESCO has promoted multidisciplinary work and pioneered horizontal concepts—such as that of sustainable development—for a variety of reasons, UNESCO is yet to realize the potential of its cross-sectoral foundations. UNESCO clearly needs to do more in this direction, and I urge you to consider ways of enhancing our intersectoral work. The best way forward is perhaps to identify a few, carefully selected areas, where we can invest in building effective examples of multi-disciplinary action.

Ladies and Gentlemen,

Major scientific discoveries and achievements have occurred in the last 40 years, changing the way we see our planet. Plate tectonics, so intimately linked to the origins of earthquakes and tsunamis, is just one example of these new discoveries. I would like to ask: How much of this knowledge is available in our schools today? Have we made an effort to capture the imaginations of younger generations, telling in simple but accurate terms, what is perhaps the most fascinating story there is: that of the origin of our planet? How it evolved. How it functions.

In all probability, many of the major policy decisions that future generations will have to face, deal with the preservation of the global environment and, ultimately, with the preservation of the life-support system of the planet. Are we forming citizens equipped with the necessary knowledge to make enlightened decisions in this challenging new context? To do this we would need a major programme in science education—which UNESCO does not yet have.

Here, I offer you just some of the issues that are of concern to UNESCO's Member States, and that have emerged in discussions related to the Organization's new Medium Term Strategy.

As you are aware, at the 33rd Session of UNESCO's General Conference in October 2005, I was asked to conduct an overall review of Major Programmes II (the 'Natural Sciences', including IOC) and III (the 'Social and Human Sciences'). I appointed the IOC's Executive

Secretary as one of the members of the Secretariat of the Review Committee. Fifteen of the 20 members of the Committee are independent science experts, initially nominated by UNESCO's Electoral Groups. The review is progressing under the chairmanship of the Deputy Director-General. I hope that in its discussions, the Committee will take into consideration the need for the IOC to move towards a more holistic approach, and to strengthen its linkages with other sectors in UNESCO.

Here, I would also like to address the funding of the IOC. At present, UNESCO's Regular Budget finances about two-thirds of the IOC's overall budget, half going to programme activities and half to staff costs. The rest of the IOC's budget, approximately a third, is covered by extra-budgetary contributions.

There has been a significant rise in voluntary contributions to the activities of the IOC, for which I am extremely grateful. In fact, these have almost doubled over the years to constitute approximately 50 per cent of the Commissions overall budget—that is, regular and extra-budgetary contributions combined. Given the zero nominal growth imposed on UNESCO over the last few biennia, the trend throughout the Organization has been to rely increasingly on extra-budgetary funding.

We are, as you know, currently engaged in the process of defining the Programme and Budget document for the next C/5—that is, for the 2008–2009 biennium. I sincerely hope that I will be able to convince UNESCO's Member States of the importance of increasing our regular budget, so that we can continue to play our lead role in flagship activities, such as those of the IOC. In the event that I succeed, such a rise will surely be reflected in UNESCO's Regular Budget contributions to the IOC.

I believe nevertheless that the special status of the IOC within UNESCO should bring an enhanced commitment from its Member States. I therefore urge you to consider ways of achieving this. Your generosity with in-kind contributions is unmatched in the Secretariat. I call on you to be equally generous with your monetary support.

Ladies and Gentlemen,

The IOC is indeed one of the most prestigious and visible programmes of UNESCO. Together with the World Heritage Centre, it is one of the two Flagship programmes highlighted in our Medium-term Strategy for 2002–2007—and I sincerely want it to remain this way.

Since I was elected Director-General of UNESCO, I have done all I can to re-invigorate the Organization, seeking to raise its credibility and visibility. However, given the wide range of activities UNESCO undertakes, I quickly reached the conclusion that the Organization needed to establish clear priorities, and to maintain them for a sufficient period of time. Without this focus, UNESCO would fail to make a visible impact in most areas of its work.

It is likewise important for the IOC to establish priorities. Reading your reports, it is clear that the IOC has significant scope to grow and to consolidate its activities. For example, as the tsunami warning system demonstrates, your operational work is expanding. This may well necessitate the transfer of resources from other IOC activities, which at present appear less of a priority for the Commission and its Member States.

Ladies and Gentlemen,

I look forward with optimism to our future work together. Judging from your very successful role in leading the UN response to tsunamis, the IOC is well positioned to become an even more powerful flagship for UNESCO. The IOC is also particularly well placed to benefit from the current UN reform, and the progress being made towards greater system-wide coherence. We must ensure that we make the best use of the new opportunities offered to us. My optimism for the future is further enhanced by the energy and inspiring leadership of the IOC's Executive Secretary, Mr Patricio Bernal. Appointed Secretary in 1998, Mr Bernal has shown untiring commitment to the success of the IOC, and has been instrumental in shaping its strategic programmes. It is with great pleasure, therefore, that I announce the two-year extension of Mr Bernal's mandate beyond September 2007, so that he can continue his excellent work.

Thank you.

B. Statement by
Vice-Admiral Conrad C. Lautenbacher, Jr. USN (ret.)
Under Secretary of Commerce for Oceans and Atmosphere

21 June 2006

GEOSS: Serving Society from Multi-Hazard to Tsunami

Thank you Patricio [Bernal, IOC Executive Secretary]. Good afternoon colleagues and friends, and thank you for allowing me to present to you as a Co-chair of the Group on Earth Observations (GEO).

The past year has proven the oceans community has both the ability and the will to play a prominent part in the success of GEOSS, particularly through the IOC's leadership. The IOC is the lead agency on one of the first, and certainly most timely, GEO deliverables —establishing tsunami warning and mitigation systems. I congratulate IOC Executive Secretary Patricio Bernal for his leadership in steering the work of the IOC and implementing the Executive Council Resolutions. The successes over the past year, under the leadership of the IOC, are proof that the objectives of GEOSS are attainable with the leadership and collaboration of the GEO parties.

I would like to start by highlighting a specific milestone: In September, Member States Participating in the Data Buoy Cooperation ceremonially deployed "Global Drifter 1250," marking the first component of the Global Ocean Observing System (GOOS) to be fully implemented.

I agree wholeheartedly with Patricio's sentiment following that ceremony:

"Finally we must celebrate a fundamental principle. This achievement today is solid proof that international cooperation among nations, institutions, and individuals can deliver significant results for the benefit of humankind."

This milestone is important for two reasons. First, it highlights that the oceans are the key to understanding the Earth's many systems. Second, it demonstrates that implementing GEOSS will not be possible without the IOC.

It should go without saying to this audience that the oceans are the key to the success of GEOSS. It is important to reiterate this point because sometimes fundamentals can get lost in the shuffle when we are discussing grand new technologies. To be sure, there is an important role for new technologies, but until we further our understanding of the ocean's role in the planet's systems, the great promise of GEOSS will go unfulfilled. Until we complete the Global Ocean Observing System, our knowledge base will remain limited.

This is a two-way street, however. As important as the oceans are to GEOSS, GEOSS is vital to the future of the oceans. As we move forward, we see important opportunities for GOOS to incorporate biological and chemical measurements, so important for monitoring, measuring and managing the health of the ocean.

The oceans cover two-thirds of the planet and we know they play a substantial role in everything from climate and weather to energy and the life sciences. However, a great deal about the ocean's role is still unknown. We will depend on the oceanographic community around the world to help fill these knowledge gaps in order to make GEOSS the landmark technology we all believe it can be. As such, it will be imperative for the IOC, particularly through its work on GOOS, to take a leading role in implementation.

I expect that you are all familiar with the GEOSS 10-year Implementation Plan and approach we are taking to conduct the work outlined by this Plan on an annual basis. The 2006 Plan identifies 96 specific benefit-driven activities that address such needs as capacity development in small island communities, sustainability of marine ecosystems, durability of disaster-monitoring networks, and establishment of global charters for satellite communication. The IOC is identified as either a lead or contributing organization to 21 of these action items.

One of the most important actions to be addressed by GEO is to facilitate the free and open exchange of data and information. All the technology upgrades in the world are meaningless if we cannot distribute the information to those who can make it valuable. The IOC and the oceans community have considerable prominence and responsibility in helping us to achieve this goal.

There are great opportunities to strengthen regional, real-time observation and communication networks. IOC efforts in hazard modelling and mapping, capacity-building, and the development of interoperability and data standards are a critical means of providing data that supports GEOSS. It is also important not to overlook the existence and the critical role of sub-regional organizations in providing technical assistance in observations, analysis, and communications.

To facilitate communications, we are working on an exciting new tool. GEO-Netcast was developed to disseminate GEOSS products including satellite and *in situ* data, products, and services. In two successful recent demonstrations of GEO-Netcast, information was transmitted to users through a global network of communications satellites, using an access-controlled, broadband capability. Through improved access to information, decision-makers will be better prepared to make effective choices. However, the quality of the GEOSS will depend on the willingness of members and participating organizations to provide free and open exchange of data.

There is perhaps no better example of the importance of establishing these communication links than the response to the devastating tsunami in December of 2004. In the example of developing a tsunami warning system, access to data can literally be a matter of life and death. The IOC, through its Pacific Tsunami Warning Centre and Assembly resolutions, has been at the forefront of international action to address Tsunami events and you deserve our thanks and congratulations.

Efforts are underway to establish durable and interoperable systems for seismic, sea level and deep-ocean monitoring, and to make this information available to decision-makers in a way which empowers them to act effectively. Once completed, we will cast a safety net over the world's oceans helping to ensure that the devastation of 2004 is never repeated.

It is imperative that we continue the momentum forward on tsunami and related coastal hazard issues while they still hold the world's attention. We have the political will to make this happen so let us turn it into political action. GEO was established to help stimulate political action and we are committed to garnering those resources for this effort.

It is also imperative that we not limit ourselves while we have this increase in political will. We must be focused on developing a multi-hazards approach to disasters. In addition to tsunamis, we should have the technology in place to guard against hurricanes, flooding, earthquakes, volcanoes and other natural disasters. Preparation, early detection and rapid dissemination of information will help us reduce the toll of natural disasters.

The beauty of GEOSS is that there will be no need to establish separate systems for each type of extreme event. GEOSS will succeed by building on existing systems and by leveraging the power of observational platforms for multiple uses. We will continue to focus on maintaining and upgrading existing systems such as Argo, GLOSS and others, even while we work to identify and fill gaps in coverage.

As I said earlier, we know gaps exist, particularly in our knowledge of the oceans. Filling those gaps will often require new or improved technologies. As part of our effort to understand more about the oceans, we will collect more observations from sea-level gauges, Deep-Sea Pressure Sensors, seismic stations and other platforms. In the end, this data will not only increase our knowledge of the oceans, but will also allow us to produce more accurate forecasts and issue more effective warnings to coastal communities.

Over time, GEOSS will provide an important scientific basis for sound policy and decision-making in every sector of our society, including energy, public health, agriculture, transportation and numerous other areas that shape the quality of everyday life. The goal of every country participating in GEO is to ensure that this understanding leads to improved operational capabilities that will benefit people throughout the world.

GEO will not fulfil these promises, however, without relying on our international partners. The cooperation and partnership between IOC and WMO through JCOMM is a critical element of making the GEOSS operational. GOOS is one of several critical IOC contributions to the GEOSS, and I encourage IOC members and participants to continue its good work on this programme.

Now that a GEO Secretariat has been established at the WMO in Geneva, I also encourage you all to work closely with them to help shape the future of GEOSS. Annual Work Plans for future years are currently being developed and IOC input on them will be very beneficial.

The GEOSS effort has made significant progress in a short amount of time. That kind of success is not possible without groups like the IOC. For that, I thank you. We can and must continue to build upon these successes by taking concrete actions to improve our observational capacities. I look forward to continuing our partnership in the months and years ahead as we seek to meet these challenges and develop this great gift for all the world's citizens.

C. Statement by
Mr Hugo Gorziglia,
Director, International Hydrographic Bureau

21 June 2006

Mr President, Distinguished Delegates, Observers, Ladies and Gentlemen,

Once again the International Hydrographic Organization (IHO) thanks the IOC for having invited our Organization to participate in the meeting of this governing body.

The International Hydrographic Organization is pleased to have this opportunity to inform the Executive Council of IOC that the IHO will for the first time, this year and today, 21 June, be celebrating "World Hydrography Day", the date that Organization was established in 1921.

The United Nations General Assembly, on 29 November 2005, under its Agenda item on the Oceans and the Law of the Sea, adopted Resolution A/RES/60/30. This resolution includes the following statement:

"Welcomes the adoption by the International Hydrographic Organization of the 'World Hydrography Day', to be celebrated annually on 21 June, with the aim of giving suitable publicity to its work at all levels and of increasing the coverage of hydrographic information on a global basis, and urges all States to work with that organization to promote safe navigation, especially in the areas of international navigation, ports and where there are vulnerable or protected marine areas".

The IHO is pleased to share with IOC this information that constitutes a new tool and an annual opportunity to highlight the importance of learning more about the ocean and seas and its uses and to highlight the close cooperation that exists between our organizations to tackle different matters of common interest.

World Hydrography Day will be celebrated nationally by Hydrographic Offices around the world and internationally by the IHB in Monaco. The theme for this first celebration will be "85 years of the IHO contributing to worldwide safety to navigation".

Thank you Mr President.

ANNEX IV

THE ROGER REVELLE MEMORIAL LECTURE, 2006

Global Sea Levels: Past, Present And Future

John A. Church

Chair, Joint Scientific Committee for the World Climate Research Programme, CSIRO Marine and Atmospheric Research and Antarctic Climate and Ecosystems Cooperative Research Centre

Summary— By 2100, tens of millions of people may be vulnerable each year to coastal flooding events associated with sea-level rise and extreme events.

Sea level has risen by over 120 m since the last glacial maximum, about 20 thousand years ago. The majority of this rise occurred before 6 thousand years ago. From ancient Roman times until the 18th century there has been little rise in global average sea level. The longest tide gauge records, extending over several centuries, indicate an increase in the rate of rise commenced in the 19th century. A combination of tide gauge data and satellite-altimeter data have been used to estimate sea levels from 1870 to the present. These data show sea levels have risen by about 20 cm over this period, a 20th century rate of rise of 1.7 ± 0.3 mm yr⁻¹ and a significant acceleration in the rate of rise. Satellite-altimeter data from 1993 indicate a rate of rise closer to 3 mm yr⁻¹, but it is not yet clear if this is a further acceleration in the rate of rise or part of natural decadal variability.

The largest contributions to late-20th-century sea-level rise are ocean thermal expansion and the melting of glaciers and ice caps. The ice sheets of Greenland and Antarctica have made smaller contributions. The contributions from changes in terrestrial storage have significant uncertainties. Volcanic activity is one of the causes of decadal variability in sea level. Immediately after an eruption, the decrease in short-wave radiation reaching the ocean surface results in an ocean cooling that can persist in the oceans for decades to centuries.

Sea level is likely to continue to rise through the 21st century and beyond. Even after stabilization of greenhouse gas concentrations in the atmosphere, sea levels are likely to continue to rise for decades and centuries because of the long time scales associated with ocean circulation and the ice sheets. There is increasing concern that the large ice sheets of Greenland and Antarctica might contribute significantly to sea-level rise through surface melting (Greenland in particular) and dynamic responses.

A rise in sea level leads to more frequent flooding events of a given level. There is already evidence that this has occurred during the 20th century. Changes in the intensity of atmospheric weather patterns (for example, an increase in the intensity of tropical cyclones) will also alter the frequency and intensity of extreme events. Changing sea-levels and extreme events will potentially impact on tens of millions of people. Appropriate planning and adaptation actions can significantly reduce the number of people affected.

John A. Church is an oceanographer with CSIRO Marine and Atmospheric Research and the Antarctic Climate and Ecosystems Cooperative Research Centre. He has published across a broad range of topics in oceanography and his area of particular expertise is the role of the ocean in climate, particularly climate change due to human activities. He is co-editor of a book “Ocean Circulation and Climate” published by Academic Press. He was Co-Chair of the international Scientific Steering Group for the World Ocean Circulation Experiment from 1994 to 1998 and is now Chair of the Joint Scientific Committee of the World Climate Research Programme. He has been a Principal Investigator on NASA/CNES Topex/Poseidon and Jason Science Working Teams since 1987. He was co-convening lead author for the Chapter on Sea Level in the IPCC Third Assessment Report. He co-chaired the recent WCRP Understanding Sea-level Rise and Variability Workshop.

ANNEX V

IOC AD HOC WORKING GROUP ON THE FRAMEWORK FOR A GLOBAL OCEAN-RELATED HAZARDS EARLY WARNING SYSTEM

GUIDELINES

Preamble

An inter-sessional ad hoc Working Group on Global Ocean-related Hazards Warning and Mitigation System (GOHWMS) was established by IOC Resolution XXIII-15. Annex 4 to the Action Paper for the 39th Session of the IOC Executive Council provided terms of reference (guidance) for the initial meeting of the Working Group on 20 June 2006.

The Commission concluded that, in building toward global system(s) for tsunami and other ocean-related hazards, due account should be taken of existing mechanisms and capabilities and that any framework should address all the necessary components of an integrated end-to-end system. The strategy would seek to improve our understanding and forecasting of ocean hazards through focused scientific research and technological development and utilize and work to improve durable global observational capabilities, particularly through the transfer of marine technology. All information from the system(s) would be broadly available.

The Executive Council, at its 39th Session, agreed to extend the mandate of the Ad Hoc Working Group through the next inter-sessional period, and agreed the following guidelines.

Guidelines

The ad hoc Working Group on the Framework for a Global Ocean-Related Hazards Early Warning System will:

- (i) Continue the development of the framework document, taking account of the need for the System to:
 - Address the effectiveness, relationship and sustainability of the technical components of all IOC regional tsunami and ocean-related hazard warning systems;
 - Consider potential gaps in the present system, particularly in areas for which no system exists;
 - Develop and exploit synergies amongst all regional warning systems, in the form of a global system of systems; and
 - Harmonize and promote the efficiency of the governance mechanisms for all IOC regional tsunami and related-hazard warning systems.
- (ii) Provide an outline for a permanent group or mechanism to discharge the governance tasks elucidated in (i).
- (iii) Provide an outline for the further development of a strategy for ocean-related multi-hazards.

- (iv) Through the Executive Secretary, present the Working Group's preliminary consideration of these matters to the Officers for their meeting in January 2007, and a full report to the IOC Assembly at its 24th Session.
- (v) Initially, conduct its work by e-mail; subsequently, the Working Group should meet (meeting to be organized by the Executive Secretary IOC) in early 2007, so as to allow timely consideration of these matters by the Member States.

ANNEX VI

**REPORT OF THE CHAIRMAN OF THE TECHNICAL COMMITTEE
FOR RESOLUTIONS**

Mr Geoff Holland (Canada)

The Technical Committee for Resolutions met several times during the Executive Council and I would like to thank the many delegates that gave their time to reviewing the Draft Resolutions (Drs) being considered at this session. I would also like to thank Julian Barbière and Ms Aurora Mateos, of the IOC Secretariat for providing the Technical Committee with documentation assisting with amendments and the final preparation of the DRs for translation.

Despite the efforts of Member States and the Secretariat, there were difficulties in getting through our work. Due to the limited time available, the Technical Committee had to consider some DRs in advance of the agenda item being discussed in Plenary. Although the set of guidelines for the Technical Committee does allow for such an occurrence, it is not the preferred way of handling DRs. There are some changes that will be necessary in the available green copies of the DRs and which I can introduce at an appropriate time. In addition, towards the end of the Agenda items, the Technical Committee was forced to conduct some of its work while the Plenary was in session. Again not a practice that is preferable.

The lack of time was a problem faced by other intra-sessional committees and of course the situation was compounded by DRs becoming available at the last moment.

Mr Chairman, the Technical Committee operates under an outdated set of guidelines, Doc. IOC/INF-734 rev, and this was recognized by the last Assembly and it was agreed that the IOC Executive Secretary should review these guidelines. I understand that such a review is under way but not yet complete, and I would reiterate the need to complete this task. In particular the format and language used in our Resolutions should be standardized as much as possible, especially in the way we address the reports and recommendations from our subsidiary bodies. As noted at the Assembly, there have been changes at the IOC in the conduct of our meetings and in the associated documentation and we also need to recognize the special challenges presented to us when we are adopting Resolutions that reflect decisions concerning joint subsidiary bodies. It would also help Member States to have advance indication of what agenda items were expected to generate DRs, who would be submitting the DR and the Secretariat member responsible. In this regard, I would like to state that the Technical Committee did profit greatly from the presence of the relevant drafters and Secretariat members for the DRs and who helped greatly in ensuring that any changes suggested did not alter the substantive content of the DRs.

Finally, Mr Chairman, I would be pleased to answer any question that may arise during the adoption of the DRs regarding amendments made by the Technical Committee and in one or two cases I will be able to intervene and introduce some clarifications to the text when these arose after the DR was submitted to translation.

ANNEX VII

LIST OF DOCUMENTS

Document Code	Title	Agenda Items	Languages available
WORKING DOCUMENTS			
IOC/EC-XXXIX/1 Prov. Rev.2	Second Revised Provisional Agenda	2.1	E F R S
IOC/EC-XXXIX/1 Add. Prov. Rev.	Revised Provisional Timetable	2.4	E only
IOC/EC-XXXIX/2 Prov.	Provisional Action Paper	2.4	E F R S
IOC/EC-XXXIX/2 Annex 1	Report by the IOC Executive Secretary on Programme Implementation	3.2 4.2.1	E F R S
IOC/EC-XXXIX/2 Annex 1 Add. 1	Implementation of IOC Governing Body Resolutions	3.2	E F R S
IOC/EC-XXXIX/2 Annex 1 Add. 2	Status of Implementation of the Recommendations of the IOC External Evaluation Report	3.2	E F R S
IOC/EC-XXXIX/2 Annex 2	Report on Budget Execution (2004–2005) and Budget Outline and Progress Report for 2006	3.2	E F R S
IOC/EC-XXXIX/2 Annex 3	Draft Guidelines for the IOC Medium Term Strategy, 2008–2013	4.1.2	E F R S
IOC/EC-XXXIX/2 Annex 4	Draft terms of reference for the ad hoc Working Group on Global Ocean-related Hazards Early Warning and Mitigation System	4.7.5	E F R S
IOC/EC-XXXIX/2 Annex 5	Proposed clarifications for consultation with the Director-General on the Appointment of the IOC Executive Secretary	5.3	E F R S
IOC/EC-XXXIX/2 Annex 6	A Proposal to Establish a GOOS-GTOS Joint Panel for Integrated Coastal Observations	4.3.2	E F R S
IOC/EC-XXXIX/3 Prov.	Draft Summary Report (<i>issued during the Session</i>)		E F R S
IOC/EC-XXXIX/4 Prov.	Provisional List of Documents		E F R S
IOC/EC-XXXIX/5 Prov.	Provisional List of Participants		E/F/S
REPORTS OF IOC AND COOPERATIVE BODIES REQUIRING ACTION			
IOC Annual Report No. 12	IOC Annual Report, 2005	3.2	E only
IOC-XXIII/3	Twenty-Third Session of the IOC Assembly (Paris, France, 21–30 June 2005)	--	E F R S
IOC/EC-XXXVII/3	Thirty-Seventh Session of the IOC	--	E F R S

Document Code	Title	Agenda Items	Languages available
	Executive Council (Paris, France, 23–29 June 2004)		
IOC-WMO/JCOMM-II/3	Summary Report of the second session of the Joint IOC-WMO Technical Commission for Oceanography and Marine Meteorology (JCOMM-II, 15–25 September 2005, Halifax, Canada)	4.3.1	E [Ex. Sum. in F, R, S]
IOC/IOCINDIO-IV/3	Summary Report of the Fourth Session of the IOC Regional Committee for the Central Indian Ocean (Colombo, Sri Lanka, 8–10 December 2005)	4.5.1	E [Ex. Sum. in F, R, S]
IOC/SC-IOCARIBE-IX/3	Summary Report of the Ninth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE, Cartagena, Colombia, 19–22 April 2006)	4.5.2	E [Ex. Sum. in F, R, S]
IOC/IOCWIO-VI/3	Summary Report of the Sixth Session of the IOC Regional Committee for the Western Indian Ocean (Maputo, Mozambique, 1–4 November 2005)	4.5.3	E [Ex. Sum. in F, R, S]
IOC/ABE-LOS VI/3	Summary Report of the Sixth Meeting of the Advisory Body of Experts on the Law of the Sea (Málaga, Spain, 3–7 April 2006)	4.6.1	E F
ICG/IOTWS-II/3	Summary Report of the Second Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS, Hyderabad, 14–16 December 2005)	4.7.1	E only
ICG/IOTWS-I/3	Summary Report of the First Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS, Perth, 3–5 August 2005)	4.7.1	E only
ICG/NEAMTWS-II/3s	Executive Summary Report of the Second Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS, Nice, 22–24 May 2006)	4.7.2	E F R S
ICG/NEAMTWS-I/3	Summary Report of the First Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS, Rome, 21–22 November 2005)	4.7.2	E only
ICG/CARIBE-EWS-I/3	Summary Report of the First Session of the	4.7.3	E only

Document Code	Title	Agenda Items	Languages available
	IOC Intergovernmental Coordination Group for Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS, Bridgetown, Barbados 10–12 January 2006)		
ICG/PTWS-XXI/3s	Executive Summary Report of the Twenty-First Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS-XXI, Melbourne, Australia, 1–5 May 2006)	4.7.4	E F R S
IOC/ITSU-XX/3	Summary report of the Intergovernmental Coordination Group for the Tsunami Warning System in the Pacific (IOC/ITSU-XX, Viña del Mar, Chile, 3–7 October 2005)	4.7.4	E only

INFORMATION AND OTHER REFERENCE DOCUMENTS

IOC/EC-XXXIX/Inf.1	Information and Guidelines for Participants	2.	E only
IOC/EC-XXXIX/Inf.2	Roger Revelle Memorial Lecture, 2006 by John Church — short summary and biography	2.5	E only
IOC-WMO/JCM-I/3	Report of the Joint Consultative Meeting of the IOC Officers and WMO Bureau Members, 20–21 January 2006, Buenos Aires, Argentina	3.1	E only
CEB/2006/HLCP/CRP.9	UN CEB High-Level Committee on Programmes – Relations with inter-agency bodies: (b) UN Oceans, Eleventh Session, Paris, France, 27 February–1 March 2006	3.2	E only
United Nations resolution A/RES/60/30	Oceans and the Law of the Sea	4.1.1	E F R S
United Nations document A/60/91/	Oceans and the law of the sea: regular process for global reporting and assessment of the state of the marine environment, including socioeconomic aspects, Second International Workshop, Report of the Secretary-General	4.1.1	E F R S
DG/Note/06/14	UNESCO Director-General's note on the Overall Review of Major Programmes II and III, 28 February 2006	4.1.2	E F
ODG/601/4	Draft Terms of Reference of the Overall Review Committee on Major Programmes II and III	4.1.2	E F
33 C/Resolution 2	Overall Review Committee on Major Programmes II and III	4.1.2	E F R S
U.S. National Academy of	Toward an Integrated Arctic Observing	4.13	E only

Document Code	Title	Agenda Items	Languages available
Sciences report GEO 0204-4, 30 March 2006	Network (http://www.nap.edu/catalog/11607.html) Group on Earth Observations 2006 – Work Plan for 2006, version 4 (http://earthobservations.org/docs/GEO-II/GEO_0204-4_060330.pdf)	4.1.4	E only
IOC/INF-1228	Agreement between the World Meteorological Organization, the International Council of Scientific Unions and the Intergovernmental Oceanographic Commission on the World Climate Research Programme	4.2.3	E only
IOC/INF-1224	IODE Officers Meeting, IOC Project Office for IODE, Ostend, Belgium, 6–7 February 2006	4.3.3	E only
IOC/IODE-XVIII/3s	Summary Report of the Eighteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Ostend, Belgium, 26–30 April 2005	4.3.3	E F R S
IOC/INF-1229	Report on the activities of activities of the capacity-building section, June 2005–April 2006	4.4.1	E only
IOC/INF-1211	Principles and Strategy for Capacity-building	4.4.1	E only
IOC-XXIII/2 Annex 5	Enhancing the Effectiveness of Regional Cooperation in Marine Science and Technology and the Role of the IOC Regional Subsidiary Bodies	4.5.4	E F R S

ANNEX VIII

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ANNEX IX

LIST OF ACRONYMS

A/RES/___	Resolution adopted by the UN General Assembly
ABE-LOS (IOC/)	Advisory Body of Experts on the Law of the Sea
AoA	Assessment of Assessments
Argo	GODAE global profiling float project [not an acronym]
ATWC	Atlantic Tsunami Warning Centre
CAR/CU	Regional Coordination Unit for the Caribbean (UNEP)
CARIBE-EWS	Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions
CARICOM	Caribbean Community
CDERA	Caribbean Disaster Emergency Response Agency
CERMES	Centre for Resource Management and Environmental Studies (University of the West Indies, Barbados)
CGTMT	IOC Criteria and Guidelines on the Transfer of Marine Technology
CLiC	Climate and Cryosphere Programme (WMO)
CLIVAR	Climate Variability and Predictability (WMO)
CLME	Caribbean Large Marine Ecosystem
CoML	Census of Marine Life
COSMAR	Coastal and Marine Secretariat (NEPAD)
CPPS	Permanent Commission for the South Pacific
CRFM	Caribbean Regional Fisheries Mechanism
CSIRO	Commonwealth Scientific and Industrial Research Organization
CTBTO	Commission for the Nuclear-Test Ban Treaty Organization
DART	Deep-ocean Assessment and Reporting of Tsunamis
DBCP	Data Buoy Cooperation Panel
DMCG	Data Management Coordination Group (JCOMM)
DOALOS	Department of Ocean Affairs and the Law of the Sea (UN)
DR	Draft Resolution
EC	Executive Council
EEZ	Exclusive Economic Zone
ESEAS	European Sea-level Service
FAO	Food and Agriculture Organization of the United Nations
FMAP	Future of Marine Animal Populations (CoML)
FUST	Flanders UNESCO Science Trust Fund
G77	Group of Seventy-Seven at the United Nations (signatories of the “Joint Declaration of the Seventy-Seven Countries”, 15 June 1964)
GCLME	Guinea Current Large Marine Ecosystem
GEF	Global Environment Facility (World Bank–UNEP–UNDP)
GEO	Group on Earth Observations [ad hoc intergovernmental group]
GEOS	Global Earth Observation System of Systems
GLOSS	Global Sea Level Observing System (IOC)
GOHWMS	Ad hoc Working Group on Global Ocean-related Hazards Warning and Mitigation System (IOC)
GOOS	Global Ocean Observing System (IOC–WMO–UNEP–ICSU)
GRA	GOOS Regional Alliance
GSSC	GOOS Scientific Steering Committee (I-GOOS)

GTOS	Global Terrestrial Observing System (FAO–UNEP–WMO–UNESCO–ICSU)
GTS	Global Telecommunication System (WMO)
HMAP	History of Marine Animal Populations (CoML)
ICAM	Integrated Coastal Area Management Programme (IOC)
ICES	International Council for the Exploration of the Sea
ICG	Intergovernmental Coordination Group (IOC)
ICSU	International Council for Science [formerly International Council of Scientific Unions]
I-GOOS	Intergovernmental Committee for GOOS (IOC–WMO–UNEP)
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
IMO	International Maritime Organization
INCO	Iranian National Centre for Oceanography
INF	IOC Information document
IOCARIBE	IOC Sub-Commission for the Caribbean and Adjacent Regions
IOCINDIO	IOC Regional Committee for the Central Indian Ocean
IOCWIO	IOC Regional Committee for the Western Indian Ocean
IODE	International Oceanographic Data and Information Exchange (IOC)
IOGOOS	Global Ocean Observing System in the Indian Ocean (IOC/GOOS)
IOI	International Ocean Institute
IOTWS	Indian Ocean Tsunami Warning and Mitigation System (IOC)
IPY	International Polar Year
ISDR	International Strategy for Disaster Reduction (UN)
ITIC	International Tsunami Information Centre (IOC)
ITSU	Tsunami Warning System in the Pacific (IOC)
JCOMM	IOC–WMO Joint Technical Commission for Oceanography and Marine Meteorology
JCOMMOPS	JCOMM Observing Platform Support
JMA	Japan Meteorological Agency
J-PICO	Joint GOOS-GTOS Panel for Integrated Coastal Observations
LME	Large marine ecosystem
LOICZ	Land–Ocean Interaction in the Coastal Zone (ICSU)
MarBEF	Marine Biodiversity and Ecosystem Functioning
MDG	Millennium Development Goals (UN)
MLA	Main Lines of Action [UNESCO budgetary designation]
MoU	Memorandum of Understanding
NEAMTWS	Tsunami Early Warning System in the North-east Atlantic and the Mediterranean and Connected Seas (IOC)
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organization
NOAA	U.S. National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Centre (IOC/IODE)
NWPTAC	North West Pacific Tsunami Advisory Centre
NWS	U.S. National Weather Service
OBIS	Ocean Biogeographic Information System (CoML)
ODIN	Oceanographic Data and Information Network (IOC/IODE)
ODINAFRICA	Ocean Data and Information Network for Africa (IOC/IODE)
ODINCARSA	Ocean Data and Information Network for the Caribbean and South America Regions (IOC/IODE)

ODINCINDIO	Ocean Data and Information Network for the IOCINDIO region (IOC/IODE)
ODINWESTPAC	Ocean Data and Information Network for the WESTPAC region (IOC/IODE)
OLA	Office of Legal Affairs (DOALOS)
PICES	North Pacific Marine Science Organization
POGO	Partnership for Observation of the Global Oceans
PTWC	Pacific Tsunami Warning Centre (IOC)
PTWS	Pacific Tsunami Warning System (IOC)
ROPME	Regional Organization for the Protection of the Marine Environment
SOPAC	South Pacific Applied Geoscience Council
TOPS	The Ocean Policy Summit 2005
TOR	Terms of Reference
TTR	Training-Through-Research Programme (IOC)
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNIDO	United Nations Industrial Development Organization
UNITWIN	University Twinning Programme
WC/ATWC	West Coast/Alaska Tsunami Warning Centre
WCRP	World Climate Research Programme (WMO–IOC–ICSU)
WDC-A	World Data Centre A
WESTPAC	IOC Sub-Commission for the Western Pacific
WIOMSA	Western Indian Ocean Marine Science Association
WIS	WMO Information Systems
WMO	World Meteorological Organization

In this Series	Languages
Reports of Governing and Major Subsidiary Bodies , which was initiated at the beginning of 1984, the reports of the following meetings have already been issued:	
1. Eleventh Session of the Working Committee on international Oceanographic Data Exchange	E, F, S, R
2. Seventeenth Session of the Executive Council	E, F, S, R, Ar
3. Fourth Session of the Working Committee for Training, Education and Mutual Assistance	E, F, S, R
4. Fifth Session of the Working Committee for the Global Investigation of Pollution in the Marine Environment	E, F, S, R
5. First Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions	E, F, S
6. Third Session of the <i>ad hoc</i> Task team to Study the Implications, for the Commission, of the UN Convention on the Law of the Sea and the New Ocean Regime	E, F, S, R
7. First Session of the Programme Group on Ocean Processes and Climate	E, F, S, R
8. Eighteenth Session of the Executive Council	E, F, S, R, Ar
9. Thirteenth Session of the Assembly	E, F, S, R, Ar
10. Tenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific	
11. Nineteenth Session of the Executive Council, Paris, 1986	E, F, S, R, Ar
12. Sixth Session of the IOC Scientific Committee for the Global Investigation of Pollution in the Marine Environment	E, F, S
13. Twelfth Session of the IOC Working Committee on International Oceanographic Data Exchange	E, F, S, R
14. Second Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Havana, 1986	E, F, S
15. First Session of the IOC Regional Committee for the Central Eastern Atlantic, Praia, 1987	E, F, S
16. Second Session of the IOC Programme Group on Ocean Processes and Climate	E, F, S
17. Twentieth Session of the Executive Council, Paris, 1987	E, F, S, R, Ar
18. Fourteenth Session of the Assembly, Paris, 1987	E, F, S, R, Ar
19. Fifth Session of the IOC Regional Committee for the Southern Ocean	E, F, S, R
20. Eleventh Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Beijing, 1987	E, F, S, R
21. Second Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Arusha, 1987	E, F
22. Fourth Session of the IOC Regional Committee for the Western Pacific, Bangkok, 1987	E only
23. Twenty-first Session of the Executive Council, Paris, 1988	E, F, S, R
24. Twenty-second Session of the Executive Council, Paris, 1989	E, F, S, R
25. Fifteenth Session of the Assembly, Paris, 1989	E, F, S, R
26. Third Session of the IOC Committee on Ocean Processes and Climate, Paris, 1989	E, F, S, R
27. Twelfth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Novosibirski, 1989	E, F, S, R
28. Third Session of the Sub-Commission for the Caribbean and Adjacent Regions, Caracas, 1989	E, S
29. First Session of the IOC Sub-Commission for the Western Pacific, Hangzhou, 1990	E only
30. Fifth Session of the IOC Regional Committee for the Western Pacific, Hangzhou, 1990	E only
31. Twenty-third Session of the Executive Council, Paris, 1990	E, F, S, R
32. Thirteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, New York, 1990	E only
33. Seventh Session of the IOC Committee for the Global Investigation of Pollution in the Marine Environment, Paris, 1991	E, F, S, R
34. Fifth Session of the IOC Committee for Training, Education and Mutual Assistance in Marine Sciences, Paris, 1991	E, F, S, R
35. Fourth Session of the IOC Committee on Ocean Processes and Climate, Paris, 1991	E, F, S, R
36. Twenty-fourth Session of the Executive Council, Paris, 1991	E, F, S, R
37. Sixteenth Session of the Assembly, Paris, 1991	E, F, S, R, Ar
38. Thirteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Baja California, 1991	E, F, S, R
39. Second Session of the IOC-WMO Intergovernmental WOCE Panel, Paris, 1992	E only
40. Twenty-fifth Session of the Executive Council, Paris, 1992	E, F, S, R
41. Fifth Session of the IOC Committee on Ocean Processes and Climate, Paris, 1992	E, F, S, R
42. Second Session of the IOC Regional Committee for the Central Eastern Atlantic, Lagos, 1990	E, F
43. First Session of the Joint IOC-UNEP Intergovernmental Panel for the Global Investigation of Pollution in the Marine Environment, Paris, 1992	E, F, S, R
44. First Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1992	E, F, S
45. Fourteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 1992	E, F, S, R
46. Third Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Vascoas, 1992	E, F
47. Second Session of the IOC Sub-Commission for the Western Pacific, Bangkok, 1993	E only
48. Fourth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Veracruz, 1992	E, S
49. Third Session of the IOC Regional Committee for the Central Eastern Atlantic, Dakar, 1993	E, F
50. First Session of the IOC Committee for the Global Ocean Observing System, Paris, 1993	E, F, S, R
51. Twenty-sixth Session of the Executive Council, Paris, 1993	E, F, S, R
52. Seventeenth Session of the Assembly, Paris, 1993	E, F, S, R
53. Fourteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Tokyo, 1993	E, F, S, R
54. Second Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1993	E, F, S
55. Twenty-seventh Session of the Executive Council, Paris, 1994	E, F, S, R
56. First Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Melbourne, 1994	E, F, S, R
57. Eighth Session of the IOC-UNEP-IMO Committee for the Global Investigation of Pollution in the Marine Environment, San José, Costa Rica, 1994	E, F, S
58. Twenty-eighth Session of the Executive Council, Paris, 1995	E, F, S, R
59. Eighteenth Session of the Assembly, Paris, 1995	E, F, S, R
60. Second Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995	E, F, S, R

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61.	Third Session of the IOC-WMO Intergovernmental WOCE Panel, Paris, 1995	E only
62.	Fifteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Papete, 1995	E, F, S, R
63.	Third Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1995	E, F, S
64.	Fifteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange	E, F, S, R
65.	Second Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995	E only
66.	Third Session of the IOC Sub-Commission for the Western Pacific, Tokyo, 1996	E only
67.	Fifth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Christ Church, 1995	E, S
68.	Intergovernmental Meeting on the IOC Black Sea Regional Programme in Marine Sciences and Services	E, R
69.	Fourth Session of the IOC Regional Committee for the Central Eastern Atlantic, Las Palmas, 1995	E, F, S
70.	Twenty-ninth Session of the Executive Council, Paris, 1996	E, F, S, R
71.	Sixth Session for the IOC Regional Committee for the Southern Ocean and the First Southern Ocean Forum, Bremerhaven, 1996	E, F, S,
72.	IOC Black Sea Regional Committee, First Session, Varna, 1996	E, R
73.	IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Fourth Session, Mombasa, 1997	E, F
74.	Nineteenth Session of the Assembly, Paris, 1997	E, F, S, R
75.	Third Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1997	E, F, S, R
76.	Thirtieth Session of the Executive Council, Paris, 1997	E, F, S, R
77.	Second Session of the IOC Regional Committee for the Central Indian Ocean, Goa, 1996	E only
78.	Sixteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Lima, 1997	E, F, S, R
79.	Thirty-first Session of the Executive Council, Paris, 1998	E, F, S, R
80.	Thirty-second Session of the Executive Council, Paris, 1999	E, F, S, R
81.	Second Session of the IOC Black Sea Regional Committee, Istanbul, 1999	E only
82.	Twentieth Session of the Assembly, Paris, 1999	E, F, S, R
83.	Fourth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1999	E, F, S, R
84.	Seventeenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Seoul, 1999	E, F, S, R
85.	Fourth Session of the IOC Sub-Commission for the Western Pacific, Seoul, 1999	E only
86.	Thirty-third Session of the Executive Council, Paris, 2000	E, F, S, R
87.	Thirty-fourth Session of the Executive Council, Paris, 2001	E, F, S, R
88.	Extraordinary Session of the Executive Council, Paris, 2001	E, F, S, R
89.	Sixth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, San José, 1999	E only
90.	Twenty-first Session of the Assembly, Paris, 2001	E, F, S, R
91.	Thirty-fifth Session of the Executive Council, Paris, 2002	E, F, S, R
92.	Sixteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Lisbon, 2000	E, F, S, R
93.	Eighteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Cartagena, 2001	E, F, S, R
94.	Fifth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2001	E, F, S, R
95.	Seventh Session of the IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE), Mexico, 2002	E, S
96.	Fifth Session of the IOC Sub-Commission for the Western Pacific, Australia, 2002	E only
97.	Thirty-sixth Session of the Executive Council, Paris, 2003	E, F, S, R
98.	Twenty-second Session of the Assembly, Paris, 2003	E, F, S, R
99.	Fifth Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Kenya, 2002 (* Executive Summary available separately in E, F, S & R)	E*
100.	Sixth Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, St. Petersburg (USA), 2002 (* Executive Summary available separately in E, F, S & R)	E*
101.	Seventeenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 2003 (* Executive Summary available separately in E, F, S & R)	E*
102.	Sixth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2003 (* Executive Summary available separately in E, F, S & R)	E*
103.	Nineteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Wellington, New Zealand, 2003 (* Executive Summary available separately in E, F, S & R)	E*
104.	Third Session of the IOC Regional Committee for the Central Indian Ocean, Tehran, Islamic Republic of Iran, 21-23 February 2000	E only
105.	Thirty-seventh Session of the Executive Council, Paris, 2004	E, F, S, R
106.	Seventh Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2005 (* Executive Summary available separately in E, F, S & R); and Extraordinary Session, Paris, 20 June 2005	E*
107.	First Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), Perth, Australia, 3-5 August 2005	E only
108.	Twentieth Session of the Intergovernmental Coordination Group for the Tsunami Warning System in the Pacific, Viña del Mar, Chile, 3-7 October 2005 (* Executive Summary available separately in E, F, S & R)	E*
109.	Twenty-Third Session of the Assembly, Paris, 21-30 June 2005	E, F, S, R
110.	First Session of the Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas (ICG/NEAMTWS), Rome, Italy, 21-22 November 2005	E only
111.	Eighth Session of the IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE), Recife, Brazil, 14-17 April 2004 (* Executive Summary available separately in E, F, S & R)	E*
112.	First Session of the Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean Sea and Adjacent Regions (ICG/CARIBE-EWS), Bridgetown, Barbados, 10-12 January 2006	E only
113.	Ninth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), Cartagena de Indias, Colombia, 19-22 April 2006 (* Executive Summary available separately in E, F, S & R)	E S*

114.	Second Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), Hyderabad, India, 14–16 December 2005	E
115.	Second Session of the WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology, Halifax, Canada, 19–27 September 2005 (Abridged final report with resolutions and recommendations)	E, F, R, S
116.	Sixth Session of the IOC Regional Committee for the Western Indian Ocean (IOCWIO), Maputo, Mozambique, 2–4 November 2005 (* Executive Summary available separately in E, F, S & R)	E*
117.	Fourth Session of the IOC Regional Committee for the Central Indian Ocean, Colombo, Sri Lanka 8–10 December 2005 (* Executive Summary available separately in E, F, S & R)	E*
118.	Thirty-eighth Session of the Executive Council, Paris, 20 June 2005 (Electronic copy only)	E, F, R, S
119.	Thirty-ninth Session of the Executive Council, Paris, 21–28 June 2006	E, F, R, S